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ABSTRACT

Focusing on the theme of classroom research, this journal presents selected proceedings from Massachusetts Bay Community College's Second Annual Colloquium on Undergraduate Teaching and Learning. The 11 presentations included are: (1) "Opening the Classroom Door," by Patricia Hutchings; (2) "Successful Maryland Methods," by Donna Kirkley; (3) "CAT (Classroom Assessment Techniques) Connections: Introductions, Partnerships and Intimacy," by Sunny Emerson and Gil Cuevas; (4) "A Macro and Micro Approach to Classroom Assessment: Strategies to Improve Student Learning at King's College," by D. W. Farmer; (5) "An Application of Classroom Research to the Social Sciences: Project on Ageism," by Bill J. Lutes; (6) "Beyond Assessment: Classroom Research for the Fun of It," by Glenn R. Erickson, Judith A. Boss, and John F. Stevenson; (7) "Classroom Research in Undergraduate Math Classes," by Ronald M. Shelton; (8) "Assessing Student Awareness of Dialectical Thinking--or Connecticut," by William Palmer; (9) "What Effect, If Any, Does Collaborative Writing Have on an Individual's Writing Ability?" by Jennifer Hicks; (10) "From Johannesburg to Beirut: Three English Teachers Collaborate to Guide and Assess Their Students' Journey," by Les Beecher, Art Ritas, and Lou Baltman; and (11) "Classroom Assessment for Literacy: Searching for Course Content Worth Teaching and Learning," by Charles J. Walker. (JMC)

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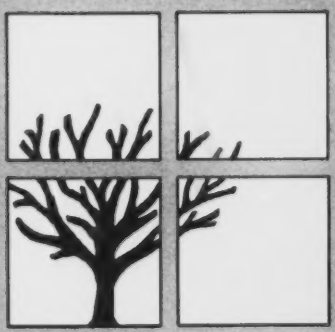

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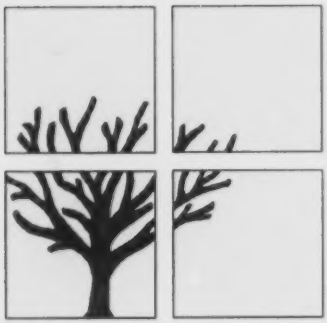

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Educational Forum

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Editor's Notes

Elizabeth F. Fideler

In this second volume of *Educational Forum,* Massachusetts Bay again presents professional discourse about teaching and learning and reflections on professional development. However, the second volume differs in two ways from the first: a) by having a specific theme, classroom research, and b) by including the contributions of faculty, instructional developers, and administrators from a variety of colleges and universities.

Building on the success of Massachusetts Bay's November '89 Conference on Assessment for the Improvement of Instruction (notable for the leadership and inspiration of Pat Cross, Tom Angelo, and others), we chose classroom research as the theme of our Second Annual Colloquium on Undergraduate Teaching and Learning. On April 5, 1991, with co-sponsorship from the Massachusetts Faculty Development Consortium and the National Council of Instructional Administrators, the College hosted a major east coast Conference on Classroom Research, providing an opportunity for discussing the ways classroom research promotes inquiry in the college classroom, for introducing innovative applications of classroom research, and for sharing ideas, concerns, and suggestions. More than 225 participated in the conference--enthusiastic teams and individuals from New England, states to the north and south, the mid-west, and Canada, as well as faculty, staff, and administrators from Massachusetts Bay.

Experienced college and university classroom researchers, including several from the College, led workshop sessions and roundtable discussions. Pat Hutchings, Director of the Teaching Initiative of the American Association for Higher Education, delivered the opening keynote address on creating the kind of classroom and campus culture where classroom research can be done. Gene Rice, Vice President and Dean of Faculty at Antioch College, gave the luncheon keynote on a broader conception of what it means to be a scholar and where classroom research fits into the picture.

Papers from eleven of the seventeen stimulating presentations constitute the conference proceedings published herein. Following Pat Hutchings' remarks, three papers describe the introduction and implementation of classroom research methods either inter- or intra-institutionally.

Donna Kirkley, Associate Professor of Speech at Howard Community College, confidently shares her own classroom assessment experiences and those of several Maryland faculty members.

Sunny Emerson, Associate Professor at Miami-Dade Community College and Gil Cuevas, Professor of Education at University of Miami, outline the graduate-level courses and faculty development workshops on classroom research created as a result of a productive partnership between their institutions.

Vice President for Academic Affairs Don Farmer carefully explains how classroom research complements the campus-wide performance-based assessment

program at King's College, adding an important "micro" dimension to "macro" efforts to increase the quality and quantity of student learning there.

Beginning with sociologist Bill Lutes' paper examining an application of classroom research to the social sciences at King's College (a project nicely illustrating the "micro" dimension of assessment at that institution), the remaining papers present discipline-specific classroom research projects.

Glenn Erickson, Director of the Instructional Development Program at the University of Rhode Island, talks about how the program has supported individual and collaborative classroom research since 1987. URI colleagues Judith Boss and John Stevenson provide interesting examples from their respective fields (philosophy and psychology).

A Millikin University professor with over thirty years' experience teaching undergraduate mathematics, Ron Shelton was turned on to classroom research in 1988. His paper advises judicious adaptation of assessment techniques and makes it clear that Ron is positive about classroom research after several semesters.

Bill Palmer, Associate Professor of English at Alma College, lets us in on the ingenious methods he devised to assess whether and how well his students are using dialectical thinking for generating and evaluating ideas.

Representing Massachusetts Bay Community College, Assistant Professor Jennifer Hicks reports the results of her ambitious study of the effects of collaboration in a process-based writing course.

Collaboration also drives the work of three dedicated English professors from Macomb Community College, Les Beecher, Art Ritas, and Lou Baltman, who employ various techniques to assess specific outcomes of their imaginatively revised curriculum.

Chuck Walker, who teaches psychology and coordinates instructional development at St. Bonaventure University, suggests a number of effective ways of teaching and assessing essential course content (which is, by the way, a concern raised by Pat Hutchings).

Consistent with the message of both keynote speeches, these papers document the scholarship of teaching and communicate the vibrant voices of professionals from the teaching community advocating classroom research for understanding and improving student learning. Thanks to the authors, many will benefit from the insights and experiences collected in this volume.

Elizabeth F. Fideler is Associate Dean for Teaching/Learning and Professional Development and General Editor of the Mass Bay Press.

Opening the Classroom Door

Keynote Address

Patricia Hutchings

Director, AAHE Teaching Initiative

The program for today is full of wonderful things, and it's clear to me that we're going to have a very exciting day. I see names I know, people I've worked with from other campuses, people who have written to me, institutions whose work I've heard about over and over.... The listing of sessions is irresistible. I, for one, am dying to find out about the CAT for intimacy and collegiality, a me-generation CAT, and a half-baked analogous CAT.

I entitled my remarks this morning "Opening the Classroom Door." And I'd like to spend a few minutes at the outset telling you about why that seems like an important topic to me and a relevant one at an occasion like this. One reason is illustrated nicely by the "Forum on Exemplary Teaching," a special program for faculty which I have had the good fortune to oversee for three years within AAHE's national conference. This Forum was inaugurated in conjunction with AAHE's 1989 conference where Jaime Escalante was our keynote speaker and succeeding "against the odds" was our theme. We wanted to honor powerful teaching by bringing exemplary teachers to the conference, which we did: 122 the first year, 175 last year, and (by design) a smaller group of about 100 this year.

There are many things I could say about the "Forum on Exemplary Teaching" and the faculty I've met there. They come from everywhere: this year from Alaska to Puerto Rico, from the University of Michigan to the Community College of Delaware, from hotel management programs to physics departments. What's most to the point here today, however, is that regardless of which categories the Forum participants fall into, there's a sense in which they are all, as our inaugural occasion suggested, working against the odds.

Each year, Forum participants tell me in tones of almost disbelief that after all these eleven or seventeen years of teaching, they've never attended a national meeting where the central topic was teaching. Of course they've gone to their disciplinary association's meetings and a sprinkle of sessions about the teaching of chemistry or 18th-century poetry or whatever the case might be. But a meeting that put teaching at

the center: that, they told me over and over, was something new, something they had never done, something there was no place to do.

Well, of course, that's not strictly true. There's this event, for instance and a growing number of similar events across the country. But the perception that it's true, that there's no place and little occasion for serious talk about teaching, speaks to an important truth. And it was, in fact, one of the participants in the Forum on Exemplary Teaching who gave that truth one of its most eloquent voices.

Diane Gillespie, a faculty member from the University of Nebraska at Omaha, wrote a piece that appeared in *Change* magazine a year and a half or so ago (some of you may have seen it) called "Claiming Ourselves As Teachers." She argues there that "talking publicly about teaching as if it matters is like finding yourself eating someone else's salad at a formal dinner." Teaching, she says, has been privatized, pushed off into the margins of academic work, concealed by the more lucrative and prestigious activities of research and publishing. It goes on behind closed doors.

Well, you say, that may be true at the University of Nebraska but not everywhere --perhaps not on your campuses. I have no doubt that there are many exceptions, and yet there's a bigger truth in Gillespie's argument. I have in mind something I heard from a faculty member at a community college recently. We were talking about rewards for teaching (in fact, the subject was Gene Rice's attention to new forms of scholarship) and this woman stood up and said, "My institution, my community college, is by statute a teaching institution, but what does that mean in practice?" "Ironically," she said, "it seems to have come to mean that good teaching is assumed; it's a given--not a subject of attention and care and inquiry and improvement, but a given. Recognition and reward follow not from teaching, but from just about everything else: degrees held, the length of service with the institution, committee work.... But teaching, the heart of the matter, is not getting the attention the statute would seem to suggest it might."

My point here is that public conversation, collective inquiry into teaching and learning is rare on most campuses, even on many of the campuses that call themselves teaching institutions--a category too often defined by the absence of research rather than by the presence of any real seriousness about teaching and learning.

Which brings me to today and to this conference--a conference about classroom research. I look at your program, and I see a wonderful testimony to the power and adaptability of Pat Cross and Tom Angelo's idea. And I see fascinating examples of how, in different contexts, disciplines, settings and forms, that powerful idea has expressed itself in your own classrooms.

But I see also that all the particular strategies represented in this program and in your work add up to something bigger. And I take the point of this gathering to be

not only the promotion of specific classroom research strategies, but the invention of a culture in which those strategies can spread and thrive.

My argument today, then, is about the need to create the kind of classroom and campus culture where classroom research can be done; a culture where teaching is a valued public enterprise, worthy of faculty time and attention and inquiry, of reward and recognition and scholarship--a culture where the classroom doors are open. And I'd like to lay out six features that might characterize such a culture.

Assessment

My first point comes out of work I have done over the past several years with the Assessment Forum at AAHE. It would, I think, be very strange indeed if for some of you "assessment" didn't ring some harsh bells, where what comes to mind is state or system-mandated testing, the reporting of scores, counting and accountability to the people whose first concern is not, after all, always the quality of education. That is, however, only a part of what is now going on in the assessment movement. And I, for one, cannot imagine a serious culture of teaching in which assessment does not play a central role.

That role was best defined, I think, by a person in this room today, David Ram from Holyoke Community College, who wrote in a letter to the AAHE Assessment Forum several years ago. "What I understand by assessment is asking, 'Are my students learning what I think I'm teaching?'" Assessment, as I think of it, and as I want to see it as a part of a teaching culture, is the enactment of a principle that drives this conference and the work of classroom research: that learning is the test of teaching.

Saying that here, with a group of people undertaking classroom research, may be like beating a horse that's already moving along quite nicely. But it's important to note that learning has not always been the test of anything in higher education. Rather, we've counted the books in the library; we've looked at faculty credentials, and, yes, counted their publications; we've looked particularly at the scores and grades of students as they enter our institutions. Assessment, if I may personify it for just a moment, insists on the need to attend not only to the input, but to the output, to learning.

This new conception of quality has implications for the way whole institutions define their effectiveness, implications that campuses across the country are now struggling with, largely in response to state mandates and new accreditation requirements. But it also has implications, more important ones I would argue, for how faculty think about students and about teaching itself. I assume I am not the only

person in this room who has taken taken pride in the good lecture, a lively classroom discussion (you know, you look around, and everyone has participated at the end of those fifty minutes), a brilliantly designed exam. Those are all goods, undeniably. But the point of assessment is that the final test of whether all those goods are good enough is that they lead to learning.

In a community of teaching, learning would be the heart of the matter. Teachers would study learning. They would see assessment not as someone else's mandate, but as a professional responsibility to each other and to students. And here I think of another letter I received at the Assessment Forum from a faculty member, an English professor, in fact, from the SUNY campus at Fredonia. Patrick Courts had been working on assessment for some time and wrote to me in a letter about his fear that his assessment would turn back on itself and become only about itself. "If assessment isn't a way to listen to student voices," he said, he wanted "nothing to do with it."

Assessment can, I think we've found, be an empty exercise, but it can also be a powerful way of listening to student voices. In the early days of assessment in higher education, five or six years ago, what most people thought of and turned to were tests --multiple choice, commercially available (you know the kind I mean). Those have turned out not to be particularly helpful to campuses that care about making improvements at the only point that really matters: the classroom, where teachers and students meet.

Instead of tests, however, we have now found faculty and campuses around the country evolving a great variety of very interesting assessment methods for listening to student voices: interviews and surveys, focus groups, portfolios, case studies, faculty-designed exams, projects, simulations and assessment center methods, capstone courses and projects, and, of course, classroom research. These would be expected ongoing activities in our culture of teaching, where faculty would be constantly asking David Ram's question, "Are my students learning what I think I'm teaching?" and another question, as well, "Are our students learning what we think we are teaching?" Because assessment is also about what it adds up to. Those are powerful questions and points of inquiry for a teaching culture.

Student Responsibility for Learning

The second feature of the teaching culture I'm trying to describe today is that students would take responsibility for their own learning. This point is, if you will, a kind of counterpoint to the first one. Assessment means faculty taking responsibility for student learning, being accountable to students (and to each other) for creating a place where learning can occur and seeing that it does. Yet, it should be said that

unless that is a place where students also take responsibility for their own learning, all the good teaching in the world will fall short.

The trick here, of course, is to find ways to help students do that. It isn't something many of them do naturally. And, in fact, for many of them there's a huge press against their being involved and responsible for their learning as they are working part and even full time, with school not their first priority, with (as one school in western Massachusetts discovered in an assessment project) six hours a week spent studying. Compounding these circumstances is the fact that many students come to college with habits of passivity and not a clue that learning is something they might be self-conscious about, actively shape, and take control of.

A culture of teaching would be one in which that situation would not stand. And interestingly, if you begin to ask what kinds of things might change that, classroom research is certainly one of the answers. So is assessment. And let me return to Patrick Courts, the SUNY-Fredonia faculty member, and describe just briefly one of the things they're doing.

About ten years ago SUNY-Fredonia instituted a new general education program. It was organized around a set of learning outcomes that students would achieve across a range of general education courses. Then, about five years ago, with the new program well underway, faculty got interested in finding out whether those new outcomes were being achieved. A FIPSE grant helped them do that, and they designed a series of instruments to assess student progress in those areas.

What they found--to skip over all the details--was that students were doing quite well in individual courses, but that what they were not doing (and what all faculty agreed, despite their predictable quibbles about this instrument and that instrument and this score and that one) was making connections between courses. What to do? Interestingly, what Fredonia faculty are doing is further assessment, using an increasingly popular method: portfolios. The system is simple. As students come into the institution, they write an essay entitled "My History as a Learner." Those essays have several purposes, including placement and advising; but one of their most important purposes is to send a strong signal to students that at that institution they are going to be expected to be reflective about their learning. Then, in the ensuing four years, they add additional essays to their portfolios and then in the senior year, the (predictable) final piece, where students are asked to write an essay in which they look back, make connections, integrate, bring the pieces together and reflect on what has happened to them as learners in the course of those years.

Such a process is a way for faculty to inquire into student learning: individual student learning or, with a group of portfolios on the table, collective learning. But it's also a way for students to learn to take greater responsibility for their own

learning, an example, if you will, of assessment that recognizes that students who are self-conscious learners (we know that from research) learn better and more effectively, and that recognizes, as well, that coherence is not only something faculty build into the curriculum, but something that students must be assisted to actively create and construct out of it.

I've avoided so far the word that probably comes to mind here for some of you, and that is "empowerment," which is at least part of what I'm getting at: the empowerment of students as learners. It is, I think, by whatever name, a necessary feature of the culture of teaching I'm trying to describe, which would, of course, be a culture of teaching and learning.

An interesting footnote here, from a conference rather like this one about a year ago in Washington state: I wandered into a session on classroom research being conducted by a faculty member at Seattle Central Community College. He was in the middle of making a point I hadn't actually heard, and it turns out not to be one of the points Pat Cross would make (I asked her). His claim was that the most important effect of classroom research is that it empowers students, that it gets them into the habit of asking themselves questions about what they're learning on a day-by-day basis in the classroom. And, he said to the faculty in that room, if you don't really want to know the answer to the question you're asking in the name of classroom research, if you aren't prepared to act on the information you're gathering, don't ask. Classroom research is a two-way contract, and a culture of teaching, the kind of community I'm trying to describe, would honor that contract.

A Focus on Content

A third feature of the teaching community is that it would take content seriously. I juxtapose this to the previous item quite deliberately in order to counteract what I think has become a reigning and unfortunate dichotomy between a focus on students and their learning on the one hand, and a focus on the discipline and its content on the other.

Fifteen or so years ago, at my own institution, Alverno College, educators turned their attention, for some very good reasons, from content to abilities, an agenda that assessment has, in large part, taken up. That was a big breakthrough, maybe even one of our vaunted paradigm shifts. But it may, I think, have gone too far. I see people who care a lot about good teaching and who have, in fact, taken on official faculty development roles, visibly stiffen when they hear "content" sneaking in the door. "Let's not let this discussion devolve into a discussion about content," they say. "We've got to keep them away from content."

I understand the point here. With a focus on content we risk getting something like the MLA session I went to a year ago, entitled "Teaching 18th-Century Poetry." In it, one heard several lively and theoretically cutting-edge accounts of Pope, but not a breath about the students or learning. Even so, I would argue it's time to get content back into the picture.

This is an argument that is made very persuasively by Lee Shulman at Stanford. Too much of our attention to teaching, he claims--and he's talking primarily here out of a context of teacher education, but the point applies more broadly--is about teaching in general, about how to lead a good discussion in the large class, how to use an overhead projector, and so on and so forth. Let me not overstate the case here--either mine or Lee's. Certainly, there are features of teaching that transcend content areas and disciplines. But in attending to those, we have perhaps neglected what every faculty member knows at a deep level and that Lee Shulman's research shows: that the teaching of English is not the teaching of chemistry is not the teaching of political science, is not the teaching of, and so forth. Let me hasten to note that I know this isn't news to teachers, but it is, as I've suggested, news in light of the current shyness about content.

And so, I'd like to propose that a teaching community would indeed be interested in content, in <u>what</u> is being taught. And I'm thinking particularly here of concepts in the disciplines. What's the most powerful way to teach the concept of evolution in biology or point of view in literature? What metaphors and analogies work best for which kinds of students? Because content is always, of course, in a context. It's the fine grained, the nuanced sense of such things that we see coming through in the *Stand and Deliver* version of Jaime Escalante, for instance. You may remember the scene where he talks about negative numbers in terms of scooping the sand off the beach and making a hole.

I just heard a similar kind of example from one of the participants at the Forum on Exemplary Teaching last year. An economics professor, who was (for reasons I can't get back) teaching first graders, was trying to convey the complicated concept of equilibrium. And he tried various definitions: equilibrium is a state from which nothing wants to depart and nothing enters; it's a state at which everything is at rest. And one of the first graders said, "Oh, you mean love."

Content is not something we talk about much. Indeed, how we teach our own subjects, what you say about equilibrium--you economists--or, in my case, point of view or the sonnet form or a particular sonnet.... Those, it seems to me, are the most <u>closed door</u> features of teaching today. We don't mind taking a lesson from a colleague in how to lead a good discussion; but how to teach my subject? That's sacred, private stuff--and just the stuff we ought to be talking more about.

Purposes and Values

The fourth feature that would characterize the teaching culture I have in mind would be a self-consciousness about values and purposes. A teaching culture would be founded, that is, on a set of convictions about the kind of learning one wants to produce. There's a lot of activity going on these days (I hardly need to say that here) in the name of better teaching: collaborative learning, computer-assisted instruction, experiential learning, distance learning, classroom research, all kinds of things on today's program.

That's all great; but it should be said that as powerful as those strategies may be, they do leave aside a bigger question: the question that is all the more crucial because of their power. To what end? What purposes are these strategies to serve? There are many possible answers to those questions, and there should be. But the point is that a teaching community would take the question "to what end?" seriously and would grapple with it publicly. It would not think of teaching as technique or method only. And we would recognize, as well, that how we teach is never a neutral thing, never just method, even if we mean it to be.

A number of fields have, I think, begun to recognize this in a powerful way: women's studies, ethnic studies. The progress that's been made in those fields on this point is beautifully summed up in the words of Parker Palmer, a man some of you may have come across as the author of "To Know as We Are Known" and other books about higher education. Here's what he said at a presentation he gave at our national conference a couple of years ago on this point of values.

> My thesis is a very simple one: I do not believe that epistomology is a bloodless abstraction. The way we know, [insert here: "the way we teach"--Palmer would insert that, too] has powerful implications for the way we live. I argue that every epistomology becomes an ethic and that every way of knowing tends to become a way of living. I argue that the relation established between the knower and known, between the student and the subject tends to become the relation of the living person to the world.

He then goes on to critique the objectivist epistomology that he argues has prevailed all too well in academe.

> Objective, analytical, experimental--very quickly this seemingly abstract way of knowing, this seemingly bloodless epistomology or neutral teaching technique becomes an ethic. It is an ethic of competitive individualism in a world

> fragmented and made exploitative by that very mode of knowing. The mode of knowing itself breeds intellectual habits--indeed, spiritual instincts that destroy community. We make objects of each other and the world to be manipulated for our own private ends.

I put that forward not so much because I think it's right (though I do) but because I think it suggests the need not to be agnostic about what's behind the strategies and methods we're trying; to attend to ends and purposes and values. I don't mean to get overly grand here, but I do think a look at such questions is more than intellectually interesting.

Take group learning, something that is very much in the wind these days--in the wind and in the classrooms. You can put students in groups because they like it--not an irrelevant reason, because they remember better the things they talked with others about, because you want them to learn teamwork.... Or you can put them in groups because you believe that knowledge is socially constructed. Those are certainly not mutually exclusive purposes, but being clear about what ends you're really after, I think, changes the way one thinks about and uses some of the strategies that many of you are now interested in.

Evaluation and Reward of Teaching–The Teaching Portfolio

My fifth point or feature of the teaching culture is that teaching should be rewarded. On the one hand, this point is obvious, straightforward, painfully so perhaps. What comes to my mind when I think of it is a comment I heard a provost from Rhode Island College make at a FIPSE project directors' meeting a couple of years ago in a session on the evaluation of teaching. Recognizing all the obstacles to effective evaluation of teaching, he insisted, nevertheless that we can evaluate teaching in a way that would be valid and reliable and credible. We simply haven't chosen to.

A teaching culture would choose to. The issue of evaluation of teaching, who does it, and how (which is, of course, essentially an issue about the public display and documentation of teaching) has not only to do with money rewards, but with recognition, respect, institutional values that might be expressed in a number of ways in a culture of teaching. It has everything to do with Diane Gillespie's comments about the marginalization of teaching. It also is an issue Gene Rice will take up this afternoon in his keynote on the scholarship of teaching, and I will leave much of it to him.

Let me just say a bit about one practical advance on the evaluation and reward of teaching, a new vehicle for the documentation and display and evaluation of teaching

that we've gotten particularly intrigued by at AAHE, the teaching portfolio. The idea of a professional portfolio of best work is not new. Artists and photographers and architects have long kept portfolios to display their best work. But what happens when we take that notion and apply it to teaching? What exactly would a teaching portfolio look like? What and how much would go into it? Who would assemble and keep it? Who sees it? How is it evaluated? What constitutes a good one? At this early stage of work, there's no consensus on those key questions, nor should there be. We need lots of models and experimentation.

But let me ask you to imagine a portfolio that looks something like this. It contains a course syllabus, let's say from a short story course I've taught now for four semesters. In the teaching portfolio are the four syllabi from that course, as revised over time, accompanied by my commentary on how and why the course has changed, how the evolution of the syllabus reflects developments in the discipline, new technologies for teaching, changes in the interests and preparation of students taking the course, and so on and so forth. That's entry number one.

Entry number two might revolve around examples of my students' work and my judgment of their work and the feedback I've given them: a paper on young Goodman Brown with my comments to the student and then my meta-commentary on the comments on the paper, looking at why I said this about paragraph two, why I didn't comment on the use of a semi-colon, whatever the case might be. The point here is to get inside the particulars of my thinking about that assignment and that student. (It seems to me that comments on student papers are, by the way, a particularly private, behind-the-closed-door act, one that we might well open the door on with the teaching portfolio.)

The third entry in the teaching portfolio might be a videotape of the class in which a difficult concept (you'll hear the point I made earlier about content coming back around here) was being dealt with, along with my written reflection on why the concept was approached as it was, how successful the session was and so forth.

No doubt you can imagine additional and helpful entries. And the teaching portfolio is certainly only one route to the reward of teaching. But it could be powerful in documenting the complexity and individuality of good teaching.

Discourse on Teaching--Developing Cases

The last feature of the teaching culture as I would hope to see it is that the teaching community would eventually become what my own discipline calls a discourse community. It would, that is, have a language for talking about teaching and learning that's rich and forward moving. I like to think of this final item as a call for

a new genre. Last fall, in *Change* magazine, some of you may have seen a piece that I take as a text here, an essay by Robert Hahn, dean of Trinity College in Vermont, entitled (and you'll hear Raymond Carver here) "What We Talk About When We Talk About Teaching." It's an apt title, given Carver's so-called minimalist style, since Hahn's point is that our public discourse--in contrast to private experience--is also (though he doesn't use the word) "minimalist" in that it lacks robustness, detail, the feel of experience; that we have devolved into talking in technological terms, bureaucratic terms, impersonal, generic terms, where all the interesting and important particulars, like what is being taught to whom under what conditions, are washed out.

Kenneth Eble, whose writing about teaching many of you may know, makes a related point. "My interest," he says, "is in the particulars of teaching, for it is attention to the particulars that brings any craft or art to a high degree of development." What we need in our culture of teaching, then, is a way of representing teaching that gets at those particulars, not a list of generalizations about good teaching, not tips for teaching (those both have their place), not a set of methods or technologies divorced from the content and context that need to animate them, but a discourse that opens a door on the particulars of what is being taught, to whom, under what conditions and to what effect.

Having called for particulars, let me get particular for just a moment here. I have in front of me a case about an introductory history class--I've entitled it "History and Its Methods." It's a case I wrote, though it represents the thinking and experience of many people, based on observation last fall of an introductory history course at The American University in Washington, D.C.

Let me just give you a feel then for this first and very imperfect stab at the kind of genre that I think we need to aim towards. The case is divided into four parts, the first of which occurs on October 19th, which is to say, some ways into the semester. It begins with a quote:

> "I thought this was supposed to be a history course," came a voice from the back of room 204. Dr. Susan Green looked up surprised. She had just been reading aloud the next paper assignment her sixty-five students in "History and Its Methods" were to complete: a comparison/contrast of the causal model of historical analysis and the mythopoeic method.
>
> The comment from the back of the room brought Susan up short. She shot a quick glance at her team-teaching colleague, Sam Marston, seated in the corner of the room, recording grades from the mid-term; but he was engrossed in his task

and did not look up. Susan took a deep breath. "I'm not sure what you mean, Brian. Perhaps you should say more."

Well, he does. We learn a little bit more about Brian, and then he comes back and says, "I mean, this just isn't what I expected. I used to love history." The class is shifting in its seats. Susan, the professor, suggests that maybe they ought to return to the syllabus (it's fifteen pages long) which she and Sam have devolved over the course of some years. She repeats some of the goals and objectives there and talks with the class about her conception of history. But Brian is still not looking particularly content.

Other students jump into the discussion. Eventually Susan begins to feel that time is passing, and she will not be able to cover all the material for the class session if she doesn't move ahead. Sam still has his nose in the grading book and is being no help whatsoever. And so she launches into the subject for the day, a lecture on "modes of thought," and we hear a bit about narrative approaches to history and some of the examples and metaphors she uses in the course of that lecture.

Eventually Sam looks up from his paperwork. "Here's another example," he says, "on the front page of the sports section you get the story, the narrative explanation, the mythopoeic version. That's what my colleague, Dr. Green here reads: the drama, the heroes, the villains, the big touchdown. But further in (here's what I read), you get the box scores. That's causal analysis."

In the final ten minutes, mid-terms are distributed. Sam announces the results: one "A," one "A-," lots of "B"s and "C"s. "Nobody bombed. That's gratifying," he says. Susan notes as she hands back the exams that Brian has gotten a "B+." "Things aren't going so badly," she thinks.

This case, the work of several months last fall, is, as I say, a first and very imperfect stab at what we're trying to do. Part of a three-year project, it is an an attempt to work with faculty to develop cases about the things that go on in their own classrooms. We are right now in the case development stage; next year at this time, we will be piloting cases on campuses and in settings like this.

Our ultimate aim is not, however, the cases themselves, but the development of a genre that will change and deepen the way we talk about teaching, one that will get the particulars back into the picture, look not at piecemeal methods, but at the whole complex, dynamic reality of classroom teaching and learning as faculty know it.

I mention this project because I see cases as particularly congenial to the teaching community--the culture of teaching--I've been trying to describe. But I also mention it because AAHE's aim in taking on cases--to promote a more situated conception of teaching, to make possible a more fine-grained faculty inquiry into which students

learn what under what conditions--seems to me very related to what you're doing here and the kinds of conversation your work makes possible.

Classroom Research and the Teaching Culture

Maybe it's no surprise, then, that one of our advisors to this project has been K. Patricia Cross. And by way of conclusion, let me bring my comments back around to Pat and to her conception of classroom research.

Pat, as some of you may know, originally meant one of classroom research's big attractions to be its privacy. You could do it in your own classroom with the door closed if you wished. It respects the traditions of faculty automony, privacy and independence; it takes into account that it's a scary thing to look your own teaching in the eye, let alone to have someone else eye-balling it. But what Pat and you and faculty across the country have discovered is that one of the main appeals of classroom research is that it gives faculty something to talk to each other about, something they have been hungering to talk about, something substantive and intellectually engaging. It's an occasion for conversation.

For I believe the community of teaching I've been trying to describe is what classroom research is finally about. That is, the power of classroom research lies not in any one method-- one minute paper or whatever--or even in a set of such methods, but in a belief that, as Pat Cross has put it, teachers should be students of learning; that, as she says in the December issue of the *AAHE Bulletin*, "Teaching in the next decade will become one of the most scholarly and intellectual activities of our roles as college faculty members."

This is a time of great interest and excitement about teaching. I see very important developments going on all over the country. I'm very happy to be part of this one.

Successful Maryland Methods

Donna Kirkley

Howard Community College

This session began with the film "Teacher Directed Classroom Research" showing instructors in various disciplines using different exercises in classroom research, demonstrating the different types of information retrievable: student awareness, student ability to apply what they are learning, student goals for a course, and student reaction to teaching methods.

I talked about my twenty years of experience teaching all types of community college courses without classroom research: giving information in writing and orally, then responding to student questions patiently (even when they sought information that had just been covered), and constantly encouraging questions from students (assuming students would ask what they needed to know). I believe all good teachers who have not tried classroom research assume this is enough.

My two years of experience with classroom research has revealed that students DO NOT ask out loud what they need to know. I illustrated this point with the responses of twenty-six students to: What questions do you have about the material covered today and last class period? This survey was taken at the end of the second class meeting in an Interpersonal Communications course. In a written response to that question, students replied with twenty-two different inquiries they had not been willing to ask orally. Very few of those questions solicited information I had covered thoroughly: most were valid considerations. I am continually surprised by how much they won't ask aloud.

My continued experience with classroom research indicates that students become more open with their responses each time I ask for more input. Students appreciate overwhelmingly the instructor's interest in their comments and questions. As students learn over time that their responses will be taken seriously and can affect the instructor's teaching, they become more thoughtful. As they learn they will not be penalized for their criticism, they speak and write more freely. I have received mountains of useful reaction to my methods.

A major objection of the uninitiated is: Where do I find time to add classroom research to my schedule?...I can't cover all the regular material. The answer is twofold: a) it doesn't take much time, and b) it doesn't matter how much you cover if

the students aren't getting it. If you stop to ask about your teaching and their learning, and incorporate that information into your activities, you will be using your time more wisely.

I schedule One Minute Papers once a week for the first three weeks of a course, then less frequently depending on what the responses have been. The One Minute Paper (OMP) is designed to use up the last one or two minutes of class time. It asks: What have you learned during class today? and What questions have you about the material we covered today? Responses clarify to the instructor immediately where she was and was not successful. After collecting the OMPs, I read each taking notes on responses I want to address in the class. I spend the first few minutes of the next class reviewing pertinent inquiries and responding to them.

So many other simple forms of classroom research are available or can be created to meet the needs of the individual teacher. I created a response sheet similar to the OMP (two simple questions) which each student was to complete after submitting his test paper but before leaving the room. I asked: What could your instructor have done differently to better prepare you for this test? and What could you have done differently to better prepare for this test? An instructor stands to learn a lot about others' perception of her teaching from answers to such questions.

After explaining some of my experiences with classroom research in the session, I presented the classroom research experiences of four other Maryland faculty.

English Professor This professor chose to assess the value of collaborative learning strategies. While working on group research projects, students submitted periodic group work reports, individual mid-course evaluation and correction, individual course participation observation and quantification, oral and written draft previews and critiques, written commentary and points on papers, and group and individual reflection on the project as a whole. Each technique provided data on teaching and learning resulting in changes in student and teacher behavior.

Psychology Professor This professor assessed student reaction to each style and method. He surveyed his class four times during the semester about their classroom experience. Questions included: What has been the hardest part of the course for you? How efficiently do I organize and use class time? Have you noticed changes in the test review methods in response to your stated needs and are the changes satisfactory? The professor reported changing his teaching methods to ones students evaluated as facilitating a more positive and "unique" learning experience.

Math/Graduate Education Professor This professor used classroom research to assess daily effectiveness of teaching using similar methods on developmental community college students and graduate students. During the final five minutes of class students were asked one or more of the following questions: What was the most confusing point in today's class? What is the most important concept you learned today? Summarize what you learned about _____. What changes in teaching strategies could help you learn? Responses were used to plan reviews, alter teaching methods and systematically use student feedback to improve teaching and learning. The graduate students later reported successfully using adaptations of these classroom research techniques in elementary through college levels.

Science Professor This professor chose to measure the consistency between the teacher's goals and the student's reasons for taking the course. She asked each student on the first day of class to write four reasons for taking the course, then presented her goals. Together students and instructor developed a common set of goals which allowed students to claim ownership in the class and gave the instructor an appreciation of diversity among the students. At mid semester a survey instrument was administered referring to the course goals. Students were asked whether they had made progress toward meeting common goals and how the instructor could better facilitate that process.

Pat Cross and Tom Angelo, creators of the classroom research concept, warn new practitioners: don't ask ANYTHING you don't want to know, because students WILL tell you. My experience validates the warning. If you are insecure about yourself, classroom research is not for you. But if you genuinely desire to discover what students think about your teaching, if you seriously want to know how well they are learning, if you are willing to adjust your methods and classroom activities to create the positive learning atmosphere, classroom research is an exciting tool. I know more about my effect on students from using classroom research for two years than I realized in my previous twenty years of community college teaching.

CAT Connections: Introductions, Partnerships and Intimacy

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Introduction

Classroom Assessment Techniques (CATs) are strategies used by college instructors for the collection of information about students' learning. These assessments, to be effective, need to be conducted in a continuous and small-scale manner. The underlying principle to CATs is that "learning can and should be monitored and that feedback from assessment should lead to more effective instruction with the ultimate goal of improved learning" (Cross, 1990).

CATs are the vehicle through which instructors can obtain insights into how their students are learning as a result of classroom activities and experiences. CATs are the tools of "classroom research," which has been defined by Cross (1990) as "the careful, systematic, and patient study of students in the process of learning" (p. 2).

Classroom research has an ethnographic orientation. The data produced from such assessments address questions instructors may have concerning the following (and provide information useful in instructional planning):

a. the learning and teaching conditions in the classroom, e.g.,
   What skills do my students have?
   What do students think of my teaching?
   How much information or concepts have the students understood after a class session?
b. the generation of hypotheses relative to the effects of specific instructional strategies; and
c. the formative evaluation of learning and instructional processes that take place in a classroom.

Knowing that in order to address excellence in teaching and learning, reforms must begin at a "grass-roots" level, Miami-Dade Community College (M-DCC) began a program in 1988 to give instructors the knowledge and tools to carry out classroom research activities. Two orientations to faculty development were designed to accomplish this goal: short-term workshops and graduate-level courses. The purpose of this paper is to describe each of these approaches and the unique partnership between a university and a community college that resulted from these efforts.

Faculty Workshops

Out of the concept paper, "Organizing M-DCC to Emphasize Faculty/Student Performance" (McCabe, 1986), emerged the Teaching/Learning Project, a multi-year, institution-wide effort to improve teaching and learning at Miami-Dade Community College. Subcommittees were formed to do the work necessary to initiate and develop the mechanisms for extensive reforms. One of those subcommittees was charged with making recommendations on classroom feedback as a technique to improve teaching and learning. Curriculum was developed in collaboration with the University of Miami (UM) for two graduate courses: Assessing Learning in the Community College and Effective Teaching and Learning. Thus, the concept of classroom research was introduced on the Miami-Dade Community College campuses. New faculty are required to take these UM courses for advancement to continuing contract status, at no charge to them. Tenured faculty are encouraged to take the courses for professional renewal. The subcommittee's recommendations for providing ongoing support for the practice of and experimentation with classroom assessment techniques led to the development of CATs workshops. Implementing classroom assessment techniques and using the feedback gained from these assessments is an integral part of the college's strategy for improving the quality of teaching and learning.

Three CATs workshops were developed:

1. A CATs Overview entitled "Mirrors Never Lie." Faculty are asked, "Do you systematically observe what's going on in your classroom? Have you looked in the mirror lately to see how your students see you?" In this introductory workshop, participants learn what distinguishes classroom research from traditional educational research, what CATs can do for them, and how CATs can be used across disciplines.

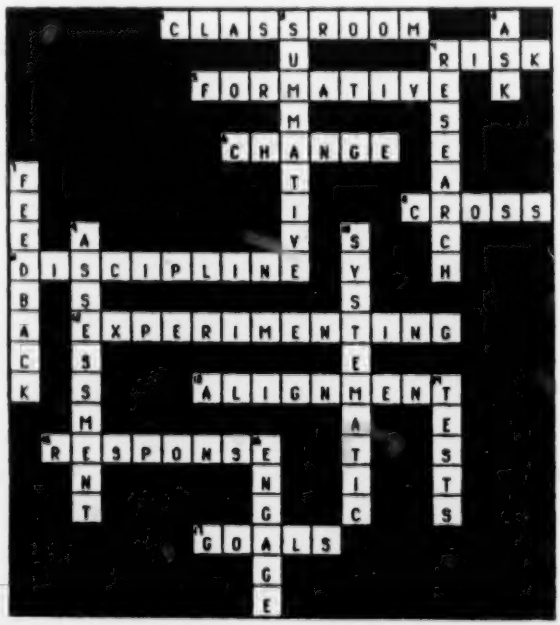
2. CATs for Assessing Student Learning. In this two-part workshop, participants learn how to use a variety of assessment techniques for assessing their students' learning, how well students are remembering information about a given topic, and

what students are understanding/misunderstanding about a lesson. In the first session, techniques such as Mind-mapping, RSQC2, Muddiest Point, and Memory Matrix are introduced.[1] At the second session after implementation of a CAT, participants share their observations and insights.

3. CATS for Assessment of Teaching. At the first session of this two-part workshop, participants learn techniques to assess what their students think about their teaching and the materials used in class. Participants practice using a CAT and share their experience at the second session. Self Analysis, Videotaping, Chain Notes, Mini-Evaluation, Course Materials Review are some of the CATs presented.[2] As a supplement to the traditional student-evaluation questionnaires, the SGIF (Small Group instructional Feedback) is introduced.[3] The SGIF provides a situation in which the facilitator, a colleague, acts as a bridge between the instructor and the students. The feedback attained through an SGIF is produced through group consensus. Because of the trust and confidentiality established between the colleague-facilitator and the instructor, the SGIF promotes intimacy and collegiality.

A background knowledge probe in the form of a crossword puzzle is used as an ice-breaker to the CATs workshops (see Figure 1). The puzzle was software (Stevenson, 1989) generated, and it highlights concepts such as summative assessment, formative assessment, feedback, risk-taking, alignment, etc. While this CAT is puzzling to most faculty at first, after the workshop the words seem to fall into place.

Figure 1 CATs Crossword Puzzle



An important component to all three workshops is the interaction with colleagues who share an interest in experimenting with CATS to improve their teaching and their students' learning. It is through the discussions that faculty address the limitations and usefulness of CATs across disciplines. Obstacles become challenges when there is an opportunity to openly confront difficulties and explore possibilities. An adaptation of a technique by one faculty member serves as a catalyst for new ideas to be tried by others.

To assess how well participants are integrating CATs in their personal instructional schemata, participants design a concept map centered around: "VALUE WII-FM" (What's In It For Me?).[4] One faculty's map had three prongs:

Self-confidence
- knowing you're being professional
- knowing your students are learning;

Better rapport with students
- communication
- knowing what they are learning; and

Class is more fun
- students more focused on content
- students aware of their learning
- students aware of what they're not learning.

Participants also complete the analogy: "CATs are to _____ as _____ are to ____. This "half-baked" analogy helps participants synthesize the overall usefulness of CATs. Faculty have responded with: CATs are to teaching as communication is to marriage and CATs are to progress as map-reading is to traveling.

After taking a CATs workshop, an M-DCC English as a Second Language (ESL) professor developed an expectations assessment instrument to resolve a clash in teacher-student expectations in her intermediate level ESL reading class.[5] In addition to complaints that the class was too much work, the students felt that the instructor had no right to ask them to identify details in a reading passage at their level of English proficiency. The expectations assessment was divided into two parts. First, students were asked to respond on a survey about their academic and career goals. The items tapped into why they were taking this particular course, what they expected to learn, and how difficult they expected the course to be. Part two involved a small group activity. Students were divided into small groups to discuss such questions as: Is there a difference between learning a second language and learning an academic subject? Will college in the United States be as difficult as college in your own country? Who does the most work in a class--the teacher or the student? Why do you think so? and, What do you think makes a good language learner?

An analysis of the survey showed that not one student in the class expected a level 3 student to be able to understand more than the general idea of a passage. Most students expected the class to require a minimum of effort. Discussion yielded a valuable exchange, for it opened up the students' awareness about the task of learning and the demands of the course. The instructor was able to discuss her expectations and the rationale behind them in a receptive atmosphere. A comfortable, open rapport was established as there was now an alignment between student/teacher expectations.

To address the problems of passive students who have little understanding of learning strategies, an M-DCC professor from the Social Science Department developed a 1730K computer-based inter-active study guide featuring a variety of learning techniques, with special emphasis on concept-mapping.[6] The guide covers the course content of M-DCC's PSY 1000, The Individual in Transition. Concept cloze tests are employed to assess knowledge of interrelationships between concepts.

Opening a class by briefly reviewing material presented at the previous class is a sound educational practice. An M-DCC biology instructor, added a new twist to her review as a result of a CATs workshop.[7] She now asks her students to write a short paper on "The Muddiest Point of Today's Presentation" as a homework assignment. The issues brought up in these papers become the focus of her review.

The workshops were developed with the KISS (Keep it Simple Sweetie) principle in mind. Handbooks for participants contain simplified generic samples of CATs adapted from *Classroom Assessment Techniques: A Handbook for Faculty* (Cross and Angelo, 1988) *and How Am I Teaching?* (Weimer, Parrett and Kerns, 1988). Handouts are xerox-ready and easily modified for specific classes.

Graduate-Level Courses

The University of Miami and M-DCC began in 1988 a collaborative project to develop two courses designed to enhance faculty's knowledge and skills to improve student learning. A group of three M-DCC faculty and two university professors used the following premises to structure the content of the courses:

a. The need to change instructors' perceptions of the changing nature of teaching and learning.

   Current research in teaching and learning stresses the shift in roles teachers need to assume in order to provide effective instruction to students. Two of these roles include "teachers as observers" and "teachers as learners." These orientations imply a focus on the instructional and learning processes that take place in a

classroom. Teachers must continuously be aware of their behaviors as well as their students'. They need to reflect on how these behaviors impact learning and the methods used in teaching.

b. The need to give instructors tools with which they can collect and analyze information about the students' learning in order to improve teaching.

Instructors need to use certain strategies or techniques to become more effective "teachers as observers" and "teachers as learners." The emphasis on the courses is to be not only on the principles and theories which support such techniques but on the strategies themselves. The courses have a very strong hands-on component. If changes in behavior among instructors are to occur, opportunities need to be provided for faculty to experience the implementation of such techniques.

c. The need to enhance instructors' knowledge of what constitutes effective teaching and learning.

The primary purpose of classroom research and classroom assessment techniques is the improvement of learning. It was deemed necessary to include in the content of the courses principles and strategies for effective teaching and learning. This information could be used by faculty to refine or modify their teaching as a result of the feedback or classroom research activities conducted.

Given these premises, the M-DCC/UM planning group decided that the course instructors should model the implementation of classroom research activities. The courses should be taught in a manner that would illustrate exemplary practices for faculty. The following is a topical outline of each of the courses.

Course Title: Assessing Learning in the Community College

This course provides participants with the skills required for the assessment and analysis of learning processes and outcomes in community college classrooms. Formative (feedback) and summative (testing) assessment, as well as data analysis and interpretation are included. Course activities include: lectures, group projects, collaborative learning experiences, reports, participation in assessment strategies, role playing, and demonstration of assessment techniques.

The content of the course is divided into four units each addressing the following objectives:

Unit #1 - Role of Assessment in the Community College

a. Developing a conceptual framework of the relationship of assessment and classroom research to teaching and learning in the community college.

b. Identifying formative and summative assessment concepts.

c. Describing and giving examples of the uses of assessment results.

d. Summarizing a rationale for the role of goals and objectives in assessment.

Unit #2 - Assessment and Analysis of the Learning Process/Feedback

a. Describing "tools" or strategies used for teacher-controlled classroom process analysis, such as, matching teaching goals to classroom activities, correlating instructional strategies to students' learning styles, developing assessment techniques for the appraisal of learning, and student metacognitive techniques to assess students' acquisition and application of learning.

b. Applying techniques to assess students' acquisition and application of learning.

c. Implementing strategies to assess students' self-awareness as learners.

d. Interpreting data from classroom feedback activities.

e. Planning instructional activities based on classroom feedback results.

Unit #3- Using Summative Assessment Techniques in the Classroom

a. Describing the role and use of tests in summative assessment of students' learning.

b. Applying principles of assessment to the construction of classroom tests.

c. Interpreting results of summative assessments.

Unit #4 - Conducting Research in the Classroom

a. Discussing the differences and similarities between "general" and "classroom research" frameworks.

b. Identifying teaching/learning research areas of personal interest.

c. Conducting and reporting on a classroom research project

Course activities and requirements consist of the following:

- Assessment Implementation Reports

  Paticipants complete three assignments on the implementation of assessment techniques. These implementations address each of these areas--student content knowledge and learning skills.

- Research Project

  A "classroom research" project applying the principles and instructional appraisal techniques presented in class is required. This project includes data analysis and report of the results as well as documention of the use of the results in a classroom situation to improve teaching/learning.

- Research Literature Summary

  The class is divided into seven groups (this number coincides with the categories given in the course bibliography). Each group selects and reviews three references. Each group writes a summary of the review and an oral presentation is made in class.

- "Final" Examination

  An essay-type final examination on the principles and assessment strategies covered in the course is given. This "examination" is used to obtain feedback concerning the course content, the activities and instructional methods used.

Course Title: Effective Teaching and Learning in the Community College

This course provides a blend of practical, relevant classroom issues and a theoretical base which makes meaningful the study of those issues. The content addresses several areas of teaching and learning. These areas include teaching styles, learning styles, motivating learners, planning for instruction, using resources, and practical tools for teaching as well as techniques to obtain feedback. Class activities consist of a combination of instructor presentations, participant exercises and directed discussions.

The objectives include:

1. Understanding primary college teaching approaches, including the reasons for and the usefulness of each;

2. Becoming familiar with typical learning styles of college students, and the way these styles interact with other factors in the students' backgrounds;

3. Gaining knowledge of the demographic and attitudinal characteristics of M-DCC students, including cultural and ethnic variables and how these relate to educational factors;

4. Developing insight concerning the task and strategies for effective teaching in multicultural classrooms;

5. Applying the basic principles of instructional planning;

6. Discovering and sytematizing the college-wide instructional resources available in their respective areas of interest; and

7. Sharpening skills and insights concerning a selection of practical teaching competencies such as rapport, coherence, leadership, questioning strategies, course evaluation, and assessment of students' learning.

Course activities and requirements include:

• Individual Teaching Portfolio

The portfolio addresses each of the course objectives in terms of: a. initial notations from readings; b. description and results of instructional activities; and c. comments concerning personal teaching practice following the collection of feedback data from students. The purpose of this portfolio is to keep each participant's attention directed to the application of the course content to his/her particular teaching context, personal needs and professional background.

• Final Examination

Similarly, the "final" examination is used to obtain feedback on the degree to which participating M-DCC faculty found the course content and activities useful to their instructional practice. This information is used to make course changes for future classes.

Closing Remarks

The success of the partnership between UM and M-DCC can be attributed to the cooperative spirit between the institutions. From planning to delivery, the focus of the graduate-level courses and faculty workshops has been on the goal of improving teaching and learning. While the courses and workshops need to be evaluated over time, some lessons have already been learned:

1. The partnership between the institutions is a cybernetic system. There must be thermostats and feedback loops built into the monitoring and review of the program. The same fundamental principles of Classroom Research are applied to the development of the program.

2. The courses and workshops must be offered on-site at convenient times for the participants.

3. Relevance, practicality, personalization, and ease of implementation are necessary ingredients for faculty to "buy into" the program.

4. Institutional support, mutual benefit, and shared leadership are essential for a successful partnership.

Ultimately, the test of the effectiveness of the courses and workshops will be whether faculty change their teaching behaviors, whether faculty integrate CATs into their instructional design, and whether students' performance improves. The desire for systematic, on-going study is evident as faculty have requested "CATs Revisited" sessions to continue the collegial exchange and exploration of CATs applications.

Notes

1. Mind-mapping, RSQC2, and Memory Matrix can be found in Cross (1988). Muddiest Point was presented at the 1990 UC Berkeley Faculty Development Institute: A Workshop in Classroom Research.

2. Self-Analysis, Videotaping, and Course Materials Review can be found in Weimer, et al. (1988). Chain Notes and Mini-Evaluation are in Cross (1988).

3. The SGIF technique had its beginnings at the University of Washington. The purpose is to review course objectives and identify specific areas in which an instructor is looking for feedback.

4. This technique was adapted from an activity demonstrated at "Adding Power, Punch and Pizazzz in Your Training Presentation," a staff development seminar presented by Bob Pike, October 1990.

5. This instrument was developed by Maria Cantanero, a professor from the International Students Department at M-DCC South Campus.

6. This software was developed by Ken Hauser, a professor from the Social Science Department at M-DCC South Campus.

7. This technique was adapted by Miriam Del Campo, a biology instructor on M-DCC South Campus.

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A Macro and Micro Approach to Classroom Assessment: Strategies to Improve Student Learning at King's College

D. W. Farmer

King's College

How would teaching and student learning be affected if the assumptions and strategies supporting classroom assessment and classroom research were to be applied not to a single course but to an entire curriculum? King's College is attempting to provide an answer to this question through its development of an outcomes-oriented curriculum complemented by a course-embedded, performance-based assessment program.

Assessment as Learning

Although King's College initiated its curriculum and assessment project several years before Patricia Cross and Tom Angelo began their classroom research project, there was a wonderful synergistic effect when the two were brought together on the King's College campus. The two developing in tandem are actually the micro and macro dimensions of the same task: to discover more about the relationship between teaching and student learning in order to act upon that understanding to make the changes required to improve the quality of undergraduate education. Both view assessment as being an integral part of the teaching and learning process and both seek to pursue a systematic inquiry into what, how and how well students are learning. Just as individual teachers need to make their goals and objectives explicit in order to improve their teaching, so does a faculty need to make the goals and objectives of the entire curriculum explicit in order to improve student learning. In both cases faculty and students need to receive specific, comprehensible feedback on the extent to which the teaching and learning process is achieving its desired goals.

Assessment by itself will do nothing to improve the quality of education unless it is tied to classroom improvement and curriculum improvement. Effective feedback to teachers and students is a crucial factor in accomplishing such improvement. The feedback process and its significance for teachers can be visualized as follows: teaching technique > feedback on student learning > revision of the teaching strategy =

linkage between assessment and instruction. The feedback process and its significance for students can similarly be visualized: student performance > feedback utilizing specific criteria to evaluate performance > application of feedback to achieve academic success = cumulative and transferable learning. Assessment permits the teacher and the student to act upon feedback to improve the processes and products of instruction and learning.

Classroom assessment has as its agenda the specific questions about student learning that arise within the context of a single faculty member's classroom. Its advantage is that faculty are inclined to act most quickly to make changes when assessment data relates to real student performance or problems in their own classroom. Collaborative assessment applied to an entire curriculum has as its agenda the specific curricular questions that focus on issues of coherence and integrity of the curriculum and whether students are actually progressing developmentally to meet the expectations established by faculty. One of the insights most frequently encountered is that coherence requires that students experience the curriculum in a specific sequence which contributes to cumulative learning. The advantage of collaborative assessment is that faculty are cooperating on shared pedagogical concerns frequently resulting in a collegial response to improving the quality of student learning. Such a collegial response usually recognizes that solving many student learning problems requires a systematic approach across the curriculum rather than a selective intervention only in a single classroom.

Assessment at King's College evolved naturally out of the faculty's implementation of an outcomes-oriented curriculum and has become an integral part of the teaching and learning process. The decision to define excellence at King's College in terms of actual student learning outcomes has required not only linking student-centered teaching/learning strategies with curriculum goals but also making the changes necessary to enable students to meet faculty expectations. In the process of accomplishing this, it has also become possible to gather documentation for the learning which had taken place for students.

This latter task can best be accomplished by examining actual products of student learning through the use of student portfolios and through a sampling of student performances on course-embedded assessments across the curriculum, either by the subject or skill areas reflected in the curriculum. For this assessment to be credible, however, others must be able to validate the way faculty have applied previously established standards and criteria to these products of student learning.

The model of student academic development should support assessment. A simple snapshot at the end of the process is not valuable unless it reflects an ongoing process of assessing student development. What are the specific institutional expectations for

student learning? How does one know if students are meeting these expectations? Is there a difference between what a teacher teaches and what a student learns? Is there coherence and integrity in the curriculum? What do the courses and instruction add up to for students? What changes could be made to improve both the quality and quantity of student learning? These are all questions crying out for answers. The questions and their answers are what assessment is all about.

Performance measures used on an institutional level must get specific about the intended results of higher education. The goal of education is certainly not for students to parrot what they have seen and heard. It is to develop the capacity to apply the insights and skills acquired from prior learning to new circumstances. What higher education claims may be the outcomes are far too noble and intellectual to be assessed by multiple choice questions found on standardized exams. The effective assessment of sophisticated outcomes such as higher order reasoning and effective communication requires the use of performance-based assessments utilizing a set of criteria established in advance. Assessment strategies must be appropriate for the quality of the intended outcome.

Assessment Characteristics for Macro/Micro Levels

The micro and macro levels of assessing student learning share many of the same characteristics because they both embrace the concept of assessment as learning. The assessment focus in the classroom supports and strengthens assessment across an entire curriculum. Both seek to improve the quality of undergraduate education by enhancing teaching and student learning. Good assessment strategies are synonymous with good teaching strategies.

Assessment is:

1. a guide provided by desired learning outcomes defined by specific criteria;

2. a performance by students; and

3. a design developed by faculty individually or collegially.

Assessment then necessarily:

4. functions as an ongoing process with multiple opportunities to diagnose student learning needs and to verify their academic progress;

5. utilizes public criteria to evaluate learning; and

6. involves feedback:

   to each student: specific and meaningful enough to assist the student to gain (a) insight into his/her knowledge and abilities and (b) directions for further learning.

   to faculty: specific and meaningful enough to reveal student learning needs that can influence curriculum changes as well as changes in teaching/learning methods within individual courses (Barnett, Brown, Farmer, O'Brien, Loacker, Wutzdorff, 1988).

The application of these principles results in an assessment process that:

7. contributes to the coherence of the curriculum;

8. functions as an integral part of teaching/learning;

9. suggests a specific classroom research agenda leading to the improvement of the quality of teaching and learning.

The King's Curriculum: A Plan of Learning

Assessment has not been added onto the King's College curriculum but is rather an integral part of the curriculum design which in turn, is an actual plan of learning. This curriculum is organized as a matrix with the subject areas traditionally associated with the liberal arts comprising one dimension and the transferable skills of liberal learning another, within a developmental framework extending through four years. A complete description of the educational philosophy, strategies and challenges in developing a curriculum with a focus on student learning outcomes can be found in *Enhancing Student Learning* (Farmer, 1988).

The first part of the core curriculum focuses on eight transferable skills of liberal learning. Students gain mastery of each skill by following a four-year Competence Growth Plan that links learning in the core curriculum with learning in each student's major program. These skills reflect traditional liberal learning abilities and new technological skills. Faculty in each major program are in the process of designing Competence Growth Plans in Critical Thinking, Creative Thinking and Problem Solving, Effective Writing, Effective Oral Communication, Quantitative Analysis, Computer Literacy, Library and Information Literacy, and Moral Reasoning. It is important that each set of eight four-year Competence Growth Plans be designed by the faculty in the student's major field of study because the exit criteria should not

necessarily be the same for all students. For example, a math major may indeed need to know how to write a computer program while an English major needs only to be a sophisticated computer user.

Each Competence Growth Plan has the same format: a competence description or learning goal, specific course-embedded strategies as a means of achieving the competence, and specific criteria which faculty use to judge student performance. These criteria help to define the competence goal for students in addition to helping them become more focused learners with respect to priority learning objectives. Faculty have always had such criteria in mind but have rarely shared them so clearly with students. The very act of writing such criteria also has helped faculty to sharpen their own understanding as well as to become clearer about their objectives for student learning in the classroom. It also makes a big difference for students to know as freshmen that the faculty in their major programs have clear expectations for them to transfer liberal learning skills to course work in their major discipline.

The second section of the curriculum is comprised of interdisciplinary areas of study as well as traditional disciplines and methodologies. The focus is on ways of knowing. Faculty want students to acquire the body of knowledge that traditionally characterizes an educated person, but they also recognize that most of this content is soon forgotten after graduation. What students can really internalize is how to go about knowing in each of the disciplines. All these different disciplinary perspectives and ways of knowing need to be brought together to provide interdisciplinary solutions to complex problems in the modern world.

Four of the nine courses in this liberal arts core are specifically interdisciplinary courses designed by faculty "project teams." They are: Natural Science, Literature and the Arts, Human Behavior and Social Institutions, and Foreign Cultures. These are required courses. Students may then elect a specified discipline-based course in each category to study a topic in greater depth, but the design of each elective course follows coherently from the appropriate interdisciplinary course and also focuses on related student learning outcomes.

The third part of the curriculum explores values and is organized around the theme of Responsible Believing and Acting. Students explore values dilemmas in a series of courses and course modules in a variety of disciplines. Formal course work in Responsible Believing and Acting is complemented by the faculty development program on moral reasoning across the curriculum. The objective of this program is to prepare faculty in all disciplines to examine value issues and ethical dilemmas that occur in a variety of work or professional contexts. One of the most challenging and unique aspects of focusing on values in the curriculum at King's College has been a project to develop capstone courses in each of the four academic divisions of the

College for senior-level students. These courses are intended to help students to integrate learning in the core curriculum with learning in their major field of study by reflecting on the value-questions and ethical dilemmas they are most likely to encounter in their personal and professional lives after graduating from college. These courses are currently being pilot-tested and will eventually be team-taught by an ethicist and a faculty member whose discipline relates to the subject matter of the course.

The King's Assessment Model

Assessment needs to be diagnostic and supportive of student learning. The primary purpose of academic assessment at King's College is to provide systematic and specific feedback to students on their academic progress toward meeting the expectations of faculty throughout all four years of undergraduate studies. Students are then able to act upon this feedback to become more successful learners. There are multiple assessment experiences that take place for students from the point of entering King's College to the point of graduation. A complete description of the performance-based/course-embedded assessment program developed at King's College to complement its outcomes-oriented curriculum can be found in *Enhancing Student Learning* (Farmer, 1988).

Assessment strategies at King's College are primarily embedded in course work; rather than being external and intrusive, they are a natural and integral part of the teaching/learning process. These unobtrusive measures are viewed by students as course projects, assignments, and test questions requiring the application of the transferable skills of liberal learning. Assessment strategies embedded in course work also address directly the question of student motivation. Students take assessment seriously because it counts as part of the course grade even though faculty assign to it an additional special purpose for assessing specific learning objectives across multiple sections of the same course.

The comprehensive assessment model for enhancing student learning outcomes at King's College also contains several other components in addition to the Competence Growth Plans described above as part of the curriculum. Students encounter their initial assessment experience during the summer prior to entering the College. This assessment is primarily for advisement purposes and placement of students in proper levels of courses. Students are assessed in five skill areas: writing, critical thinking, mathematics and computer literacy, in addition to participating in a speech screening program to identify students with speech anxiety.

During the academic year, students experience pre-and post-assessments in all core curriculum courses. These assessments focus on the ability of students to think and to communicate in each discipline. In skills courses, assessments focus on determining a student's ability to use specific skills effectively. Sophomore-Junior Diagnostic Projects have also been designed in each major program for student majors. These assessments are designed to serve as a diagnostic screening device to determine the ability of students to transfer critical thinking and effective communication skills developed through the core curriculum to a selected question, case study, or project related to their major field of study. The Sophomore-Junior Diagnostic Project provides a safeguard against identifying deficiencies for students only at the senior level when it is too late to help students ameliorate these deficiencies.

The culminating assessment experience for students at King's College is the Senior-Level Integrated Assessment. This assessment is intended to provide an opportunity for the faculty in a student's major field of study to make a holistic judgment of the student's education, especially the ability of the student to integrate the transferable skills of liberal learning with learning in his or her major field of study. Most departments have developed or revised existing senior seminars as the setting for this comprehensive assessment.

The Senior Assessment is intended to be a performance-based experience which can be evaluated by all faculty members in the student's major field of study and, if appropriate, by professionals in related fields of employment. The assessment experience should provide the basis for evaluating the following areas of learning for students:

1) a command of the knowledge base for the major field of study;

2) a mastery of the methodology of the major discipline; and

3) competence in the transferable skills of liberal learning relating to the departmental competence statements and four-year competence growth plans.

Since not all the desired outcomes of undergraduate education can be realized and assessed prior to the point of graduation, King's College also conducts follow-up studies for alumni. All graduates are surveyed one year after the date of their graduation. Students are asked to compare the quality of the education they received at King's College with the perceived quality of the education of those with whom they are associated in graduate school, professional school, or in the workplace. Graduates respond in writing to a series of open-ended questions in which they are asked to compare their abilities with those of others to write effectively, to speak effectively, to

think clearly, to solve problems, and to learn independently. Alumni also comment on the quality of their academic preparation if they enrolled in graduate or professional school or of their level of performance and prospects for promotion if they are currently employed.

The collaborative assessment model across the curriculum makes sense to most faculty and students at King's College because it has evolved out of the College's primary concern with teaching and learning. It is not something artificial or tangential to the academic enterprise. It is an integral part of the curriculum design and provides meaningful feedback for students to act upon in order to realize their academic potential. It is concerned with assessing what is higher in higher education rather than what is lower--by assessing the ability of students to apply prior learning when responding to a new stimulus rather than mere information recall and by assessing the ability of students to think and to analyze rather than to memorize and to recite.

Conclusion

Assessment should always be viewed as a means to an end--improving student learning--and never as being an end in itself. It is an on-going process concerned with teaching, learning, integrating knowledge and skills, and helping students to become active rather than passive learners. It is concerned with exploring the more important questions about student learning and not with bean counting.

Locally developed methods of assessing student learning are valuable because they focus on improving student performance rather than on reporting scores to satisfy politicians, bureaucrats and journalists. The different responses of the public and of educators to the cry to improve the quality of education in America reflects the tension between the two. While the public response is for more standardized testing in order to compare scores, educators recognize that testing is not an effective means to improving education. The educator must first identify the specific desired learning outcomes, set goals high enough to challenge students, and then work collaboratively with students on that which prevents them from realizing their potential. Improving student learning should always be a higher priority than measuring student learning.

Educators need to avoid the danger of defining desired learning in higher education solely by what we are able to assess most easily. Faculty must accept the challenge of constantly trying to assess what is most difficult to assess because in higher education what we choose to assess will eventually become the definition of desired student learning. When faculty are willing to act upon assessment data to improve student learning, the heuristic and beneficial nature of assessment as an integral part of teaching and learning becomes clear.

The macro and micro levels of classroom assessment and classroom research respond to the challenge for educators to improve the quality and quantity of student learning. Since both focus on improving teaching and student learning, they simultaneously build upon and further develop an existing institutional culture in which faculty define themselves as a teaching faculty. Both approaches help to keep in front of faculty the distinction between what students are learning and what students should be learning.

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An Application of Classroom Research to the Social Sciences: Project on Ageism

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King's College

Introduction

Over the last decade King's College has undergone an extensive and well documented curricular review with respect to its core curriculum and each discipline to facilitate a cumulative four-year experience with liberal learning.[1] Further, King's has addressed the necessity for macro-level College-wide documentation of learning through a competency-based curriculum (Farmer, 1988; Lutes, 1987, 1988). In doing so, however, the College has consistently sought to document learning outcomes at the micro (classroom) level through course-embedded assessment measures.
Similarly, the merits of course-embedded assessment have been explored at the University of California, Berkeley, as part of the more general concept of classroom research (Cross, 1988; Cross and Angelo, 1988; Angelo, 1990). At present classroom research has focused primarily on the assessment of teaching and learning in the classroom. Though its usefulness for macro-level curriculum concerns is apparent, the focus has largely been to provide an impetus for the individual teacher through classroom assessment to measure both student learning and the efficacy of teaching styles, exercises, projects and other aspects of pedagogy in his/her own courses.

The project reported below, consistent with the micro concerns of classroom assessment, was initiated through a faculty seminar and workshop on classroom research at King's College.[2] The primary intent of this report is to examine two attributes of the approach. One, classroom research provides a useful rationale and structure on which to conduct assessment. It sensitizes the teacher to the need for definable and measurable outcomes. Further, it makes central the value of classroom data as appropriate assessment criteria of those outcomes. Measurable outcomes include not only assessment of student learning but also the vehicle through which the learning is intended to occur. As eminently illustrated below, classroom research allows for a conscious examination of and conscious reflection on the strong points of a teaching mode, its weak points, and how that mode may be improved on in ensuing semesters.

The second attribute of classroom research is general applicability to a wide range of disciplines and disciplinary interests, whether in the humanities, the sciences, philosophy or business. This flexibility allows classroom research to be tailored equally well to the specific needs and methodologies of a discipline. This report, for example, suggests ways in which the social scientist may, on a quick, simple and basic level, apply social science methodology to his/her course assignments consistent with the purpose of classroom research.

Conceptualization

One of the exercises in the classroom research seminar focused on identification of teaching goals through the Teaching Goals Inventory (Cross, 1988). The inventory consists of forty-eight items which represent six distinct clusters of teaching goals, or subscales, which can be variously ranked in order of importance for each course taught by the instructor.[3] This researcher applied the inventory to his core curriculum social science course, Social Issues.

While the inventory yielded three important teaching goals--critical thinking, liberal arts/academic values, and personal development, each of which is relevant to a course in social issues--only one goal would be assessed through classroom research. The liberal arts/values goal was chosen. The researcher has taught variations on the social issues course since he became a sociologist in 1968 and has always maintained that social problems/social issues courses constitute an excellent forum for developing in students sensitivity, toleration, and even appreciation of other peoples. Further, the researcher has argued that this course can provide avenues for the examination and clarification of values and, indeed, value change. Such outcome expectations are clearly identified in the course syllabus and the author has consistently assumed that students develop degrees of these attributes. These assumptions, however, had never been systematically assessed and assessment outcomes were of sufficient interest to constitute the basis of this project. Examination of the inventory items in the liberal arts/academic values cluster yielded as the normative goal for classroom assessment: "Develop respect for others, including persons of differing backgrounds" (Cross, 1988, p. 3).

Normative goals are instructive but do not lend themselves well to assessment. They may provide a wealth of theoretical hypotheses, but lacking defined empirical referents they do not as yet constitute operational hypotheses/researchable questions. Therefore, the normative goal needed to be made more specifically relevant to the immediate interests (essential goal) in the course on social issues.

Perusal of the course content suggested a number of subject areas relevant to empirical test (assessment) of the normative goal, especially those units of the course which examine prejudice, discrimination and the pervasive structural and social psychological effects of each. This theme underlies much of the discussion on racism, sexism, and ageism. Ageism was selected over the other two primarily because an experiential learning exercise was built into the section on aging in which students had the opportunity to visit nursing homes for the elderly. These visits, coupled with classroom discussion on differential treatment of the elderly in American society, were intended to not only substitute fact for fallacious and stereotypic thinking about the elderly, but also to reduce social and psychological distance, develop sympathy, empathy and sensitivity to the problems of growing old in American society, and increase respect for people who are different from the student by age. For the purposes of classroom research, an assessment mode was introduced to the existing assignment to measure changes evidenced through various forms of written observations of the elderly.

Couched in a more testable form and relevant to the above discussion, the essential goal (or hypothesis) reads:

> Upon completion of the unit on aging students should evidence a greater proportion of positive observations of the aged.

Methods

The sample for this project consists of twenty-four students in the core course, Social Issues, taught during the Spring Semester 1989 at King's College. All of the students were freshmen, between the ages of eighteen and nineteen, white, and upper-lower to lower-middle class. The sample contained a roughly equal percentage of males and females.

Approximately two weeks prior to the unit on aging, the instructor administered the Palmore Facts on Aging: A Short Quiz (1977) as a pre-assessment instrument intended to measure fallacious beliefs, intolerance, stereotyping and prejudice about the aged. He also administered this quiz after the unit was completed to reflect one post-assessment measure. Mean scores of correct responses for the class were compared across time one and time two. Any changes in the mean scores were interpreted as a result of the course experience. Positive changes were interpreted as consistent with the essential goal.

To supplement classroom coverage students were also exposed to an experiential learning exercise. As in the two previous years, four local nursing home facilities

gave permission for student visits. The students were divided into groups of four or five and each group was assigned a nursing home to visit collectively twice outside of classroom time. Each student kept notes of the experience. After the visitation period, students wrote a maximum of two pages indicating what they had thought of the elderly prior to the experience, their observations during the visitation itself, and their current impressions of the elderly. As noted, any change in aggregate impressions was interpreted as a result of the experience and positive change was interpreted as supportive of the essential goal.

Results and Discussion

Table 1 reflects a comparison of sample mean scores on the Palmore Facts on Aging Quiz under the conditions of pre- and post-assessment.[4]

Table 1. Sample Mean Scores on the Palmore Facts on Aging Quiz

Palmore Quiz	Pre-Assessment (N=18)	Post-Assessment (N=24)	Difference
Mean Score	13.333	13.708	+0.375

Analysis of Table 1 yields two immediate observations. One, the difference in mean scores was in the predicted direction (+0.375) and to that extent the prediction through the essential goal was supported. Two, the small difference might cause one to question the usefulness of the assignment as a classroom technique and prompt consideration of omitting it in ensuing semesters.[5]

This second observation needs to be more fully addressed before according it the status of a definitive evaluation of the classroom project. Several methodological difficulties exist here which need to be articulated and explored. As noted, not all students took the pre-assessment quiz. In a sample of this size six absent students represent twenty-five percent of the possible mean score. We do not know what effect their contribution would have had on the pre-assessment mean. It could have had no effect, or lowered scores substantially (thereby increasing differences in scores in the predicted direction), or it could have raised the pre-assessment mean score sufficiently

high to wipe out the observed positive direction and produce a negative result. Clearly, a more defensible evaluation exists when all students who take the pre-assessment also take the post-assessment.

A second methodological point concerns the advantage of using a control group for baseline comparisons with an experimental group. In this exercise a control group would be one on which pre- and post-assessment data are gathered but which does not participate in the experiential learning exercises with the aged. Comparisons would be made between it and the group which did participate. In this study, a control group was purposely not used for two reasons. One, during the semester this project was undertaken the researcher taught only one section of Social Issues. Had a second section been taught that semester then it could have constituted the control group. An alternative would have been to split the twenty-four students into two matched samples of twelve each, the size of which would have produced other methodological difficulties.

The second reason for avoiding matched samples for comparisons (as well as the more general avoidance of other high-level design models and computer-packaged statistical techniques of analysis) concerns what this researcher considers to be the overriding purpose of the assessment phase of classroom research. Rather than the production of published articles (though classroom research may be used for this purpose), the real intent of this approach is centered in the classroom. Classroom research sparks interest in and sensitivity to learning in all its variety, offers useful methods for assessing learning outcomes in the classroom (and curriculum) on a frequent and continuing basis, and suggests aspects of teaching to be improved. The constant monitoring of classroom outcomes is nurtured by simplicity, brevity and ease of assessment, rather than the opposite.

A final methodological consideration involves the use of the Palmore quiz as the pre- and post-assessment instrument. As the title of the instrument suggests, it is on the surface a series of true-false questions testing factual knowledge about aging and, conceivably, measures attitudinal and/or value positions only on a more abstract level. It may be the case that while it was expected that the students would respond at all levels (using factual responses to reflect attitudes and values), perhaps they did not. It is possible they responded to the quiz simply as a test of facts for which they had not studied. Further, since the instrument is structured as true-false choices, guessing could yield fifty percent "correct" answers on pre- or post-assessment results and, therefore, not measure value-added dimensions. In essence, while it has proven to be an effective heuristic device and teaching tool in the classroom, perhaps selection of an instrument which more directly measures those ageism attributes of interest to the researcher would have been advisable.

As the discussion of Table 1 indicates, there are rather serious questions of validity with respect to this first assessment measure. Fortunately, a second measure was also employed intended to generate more directly those subjective impressions that the Palmore assessment instrument did not. As indicated above, students were requested to maintain written observations of the experiential component of the course unit. In contrast to the sample for the pre-assessment quiz (Table 1) all students reported both pre- and post-experience impressions. After the student groups completed their visits to the aged in the various nursing homes, each student reexamined the written observation, thought about his/her experiences, and wrote a short reflection paper covering his/her feelings about the aged prior to the experience, the experience itself, and present feelings about the aged. Through content analysis these papers constitute the second assessment "instrument" used in this project. All further discussion in this paper is based on this second data source.

The first ordering of student observation data reflects an attempt to measure attitude change about the elderly for the entire sample and is summarized in Table 2.

Table 2. Sample Percent Change Pre/Post-Assessment, Experiential Component

Attitudinal Position	Pre-Experience Attitude (N=24)	Post-Experience Attitude (N=24)	Percent Change
Positive	16.7 (4)	41.7 (10)	+25.0
Negative	62.5 (15)	54.2 (13)	-8.3
Unsure	20.8 (5)	4.16 (1)	-16.6
Total	100 (24)	100.1 (24)	

Responses were initially grouped into three pre-experiential learning attitudinal postures: positive, negative and unsure about the elderly. Then responses were grouped into the same post-experiential learning postures and the differences were compared with the essential goal hypothesis. Results indicate that considerably more change occurred than was reflected through the Palmore scale. The percentage of the sample reporting positive responses increased (+25.0 percent), negative positions

declined (-8.3 percent), and the percentage of those who were unsure declined (-16.6 percent). Respectively, the first two findings were supportive of the hypothesis. The last finding indicated change, but uncertainty exists relative to the direction of that change.

The data were reordered for a second analysis as reflected in Table 3 in which each category of pre-assessment groupings was compared with post-assessment outcomes in an effort to ascertain change within the initial attitudinal categories.

Table 3. Sample Percent Change Pre/Post-Assessment, Experiential Component, Pre-Experience Attitude

	Post Experience Attitude (N=24)			
Pre-Experience Attitude (N=24)	Positive	Negative	Unsure	Percent
Positive	50.0%	50.0%	0.0	100.00
(4)	(2)	(2)	(0)	
Negative	46.7%	53.8%	0.0	100.00
(15)	(7)	(8)	(0)	
Unsure	20.0%	60.0%	20.0%	100.00
(5)	(1)	(3)	(1)	
N=24	10	13	1	24

Again change was evidenced but not as clearly supportive of the hypothesis. Of those who entered the experience with a relatively favorable attitude, two (50 percent) emerged from the experience with a negative attitude. Likewise, of those who were unsure as to their attitudinal stance, four (80 percent) changed, but three of the four changed to a negative orientation which obviously was not the intent of the experience assignment. However, of those who entered the experience with a negative orientation, seven (46.7 percent) did evidence positive change. Collectively, ten students (41.7 percent) emerged with a positive attitude, eight of whom (33.3 percent) had changed to the more positive direction.

Using rudimentary content analysis of such human documents as reflection papers provides ways other than analysis of objective tables based on narrative. A wealth of subjective impressions may be derived from extended descriptions of observations by students, providing a richness of insight not reflective in cross tabulations and

summary statistics. Indeed this writer's estimation of the worth of this exercise increased considerably upon reading content and sensing such reactions as sympathy, empathy and appreciation. Witness the following quotes drawn from several of the papers which have been previously identified as post-assessment positive orientation.

> It seems they have it pretty nice there, they have a lot of activities: bingo, shoe, etc....Some people don't like it there and some do....
>
> Elderly people may have worn down bodies and a few more wrinkles compared to the younger generations, but they are human beings just like the rest of us...the elderly are as young and alive as they want to be. Some choose to withdraw from society, but many others want to remain involved through community projects and activities....These nursing homes are comparable to small communities. Residents intermingle with each other and form important friendships....
>
> ...I expected to see people who were helpless and ready to die. But to my amazement many of these people were very energetic....
>
> ...we were told in class that we were to visit a nursing home. I thought you've got to be kidding. Me and the elderly do not get along....I admit I stereotype all old people....I was never one to visit my grandparents....The last thing on my mind was visiting a nursing home full of strangers.... Well my view of the elderly was wrong....
>
> Overall, this experience gave me two opposite images of old age. I saw the active and the disengaged people and how each spent their time in totally opposite ways...and helped me to see the happier approach of activity, one that I will strive for when I too am old.
>
> ...my view is better and I don't feel the "resentment" I did for these homes I once did.

Perhaps as important, reading content gave this writer some insight into bases on which some post-assessment orientations were negative. The quotes listed below illustrate the tremendous impact of this experience on many students even though a negative determination technically (by the rules of hypothesis testing) does not support the essential goal.

The elderly who resided there looked unhappy and sad until they saw our new faces...one woman had asked us what it was like in the outside world and referred to the nursing home as jail...another woman did not really know where she was; she was disoriented....

I didn't really care too much for the nursing home atmosphere...and I hope I never have to put my parents in one.

...the other woman asked me if I was there to take her home. She asked me how much it cost to get out. A woman named ____ wanted to die because she felt she was too old and had nothing to live for. Some people would not even talk to us.

...it made me feel so good talking to them. All they kept saying to us was that they wanted to go home. That broke my heart...the people who work there really do not give a good damn about the residents...after being there I was happy I went because I made a few of the residents happy.

...I always visualized nursing homes as a place where cute, little old grandparents lived. A place where they could walk around telling stories of the good old days; knitting afghans and playing checkers. I soon found my images to be false....

...you can see the loneliness and the desperate plea for friendship in their eyes. I was more than happy to get personal with these aged people....

The nursing home was like blue changing to black, dusk changing to night, fall changing to winter.... The patients...were in limbo waiting for the reaper to come and harvest their souls....

More realistically nursing homes are depositories, much like junk yards, where the old and used are sent away. They get a one-way ticket....

...nursing homes don't prepare you to die but encourage it.

Further, such content moved the author to consider the possibility of an interaction between and among clusters of variables, suggesting that the study revealed more than student reactions to the elderly <u>per se</u> and was not simply an examination of the aging process in American society. It is entirely possible that the nursing home visits "overexposed" students to deleterious and debilitating physical, mental and social

effects that are commonly, but inaccurately, associated with the aging process itself, effects that often produce sympathy but also reinforce commonly held stereotypes about the aged. This "overexposure" may be made more pronounced, given the characteristics of some (not all) nursing home settings. With reference to the last two points, Table 4 shows that the institution was commonly discussed by the sample.

Table 4. Identified Basis of Post-Assessment Attitude

Attitude	Institution Identified	Resident Identified	Institution & Resident Identified	% each Category
Positive (4)	40% (4)	(0)	50% (2)	100.00
Negative (13)	38.5% (5)	30.8% (4)	30.8% (4)	100.00
Unsure (1)	----------	----------	----------	100.00
Sample Response (N=23)	9	5	9	

Some students described the institution favorably; others emphatically did not. A few indicated they would never put their parents in such places and would themselves prefer to die rather than be placed in a nursing home. It is difficult to separate out the effects of the clusters of variables mentioned above, and the analysis is not attempted, given the scope of this project.

An explanation for why students responded differently to this exercise even though they had the same experience is less difficult to advance. Very simply, the experience was not the same for all students. Educators have long noted individual differences in students and academic settings. The sample (though homogeneity was earlier noted) still brought twenty-four different life histories into the experience, all the way from the student who never even talked to her grandparents, to students who have loved ones in nursing homes, to the student who works with mentally debilitated adults in an institutional setting. Different life experiences should produce some degree of difference in outcomes in students. Also, this project used four different nursing

homes and students found differing levels of institutional receptivity to their visitation. Poor receptivity could have influenced outcomes for some students. Visiting at different times of the day (periods of high or low activity) could also have had an impact on student impressions. Finally, there was variability in residents visited, which suggests that contact with certain elderly may reinforce negative opinions. Some students interviewed elderly individuals who were physically and mentally competent and well integrated into the social organization of the nursing home; other students simply were not so fortunate.

Recommendations

An attractive feature of classroom research and course-embedded assessment in general is that it not only allows the instructor to assess student learning but also to assess the utility of the assignment itself and the assessment measurements employed. In a very real sense the instructor can ask, "How can this assignment be improved and how can I improve the quality of assessment?"

With reference to improvement in the quality of assessment, several observations have already been noted, e.g., the researcher's re-consideration for future semesters of the pre/post-assessment instruments. In this respect another measurement should be sought to replace the objective Palmore true-false quiz. Though the quiz is of considerable value as a teaching tool, in all probability a number of scales exist in the social science literature which could more directly tap attitudinal and/or value orientations concerning the elderly and could therefore provide a better measure of that which is of interest. However, the subjective instrument (handwritten analyses of the nursing home experience) proved to be a valuable source of information. Content analysis of these documents tapped depths and provided observations of an objective and subjective nature not wholly anticipated. This method should be continued in somewhat the present form. One noteworthy change involves the time period in which students were asked to describe their pre-experience frames of reference. In the present study the students were asked to describe their pre-experience position but were asked to do so after the visits were completed. Logic would suggest that these data should be derived prior to visitations.

With reference to improvement in the quality of the experience itself, actual outcomes need to be evaluated against the expected outcomes. Did the experience produce the desired results? Were there serendipitous outcomes? Can the learning experience be improved on to better achieve the desired outcomes? In one sense visitation of the elderly in a nursing home structure was eminently worthwhile. As noted earlier, written reactions did suggest a more positive orientation among many

students (though not all), including respect for the aged and a greater understanding of their problems. On a more basic level, according to one student, it was actually the first time she had even thought about the aged. Further, as noted, many students evidenced sympathy, empathy, and friendships with those they visited and expressed good feelings about themselves for having made some people "happy." A few students understood that nursing home living, and the physical and mental handicaps of many of the elderly living in such an environment, is only one possible outcome of the aging experience.

The last point raises concern about this experience as presently structured. Although one desired outcome was to reduce stereotypic thinking about the elderly, the assignment directed students towards environs in which a high proportion of the residents have characteristics stereotypically associated with "all" elderly. Additionally, there is a confounding variable--the institutional setting to which students overwhelmingly reacted negatively or at best saw as a necessary "evil." To better achieve the assessment goal it might be advisable to incorporate the nursing home experience with visitations to one or more other settings, such as retirement communities, or elderly still living in their original homes in their own communities, or senior citizen centers. One student mentioned simply sitting down and visiting with one's own elderly family members.

Was this a learning experience worthy of continuation? Though this question was not asked of the students, none reported that it was not worthwhile. Indeed, on an unsolicited basis, ten students stated the experience was worthwhile, six of whom specifically advised that it should continue.

Selected Student "Evaluation" Statements

Overall, I thought it was a good experience and I learned a lot from it.

...this was a great learning experience, getting real life experience from a topic we recently covered was great. I encourage continuing this and feel it is a great benefit to the learning process.

...visiting a nursing home can be a great experience and it is worth the time to just observe the older generation and how they go about living their lives to the fullest. Recommend continuing this project.

I personally enjoyed the visits. The patients were fun,...and they really seemed to enjoy our company.

...it is my opinion that this should be a requirement in Core 152 in future years, because most people are unaware of this life of an elderly individual.

Notes

1. King's College has identified eight assessable liberal learning skills addressed by the core and the student' major program, i.e., critical thinking, creative thinking (problem solving), effective writing, effective oral communication, quantitative analysis, computer literacy, library information, and values awareness.

2. The similarity between course-embedded assessment and classroom research provided impetus for The University of California, Berkeley-sponsored Seminar on Classroom Research, coordinated by Thomas A. Angelo, conducted on the King's College campus in January, 1990. Faculty participants from a wide variety of disciplines were encouraged to apply classroom research to courses in their fields. Several reported their projects at The First National Conference on Classroom Research, 1990.

The project described in this paper is an outgrowth of that seminar, and an earlier version titled "Assessing Experiential Learning in the Social Sciences: Classroom Research Project on Ageism" was presented at the conference. It is reprinted in *Proceedings* of the First National Conference on Classroom Research, The University of California at Berkeley, June 16, 1990.

3. The Cross Subscales include academic success, critical thinking, liberal arts/academic values, personal development, specialized technical information, and work-related skills.

4. The differences in sample size reflect absenteeism on pre-assessment day and full attendance on post-assessment day.

5. As indicated in the introduction this is a classroom assessment project for which low-level statistical analyses were deemed appropriate and no tests of significance or measures of association were sought.

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Beyond Assessment: Classroom Research for the Fun of It

Glenn R. Erickson, Judith A. Boss, John F. Stevenson

The University of Rhode Island

We'd like to describe how we've been doing classroom research at the University of Rhode Island over the past few years. More specifically, we'll talk about the context in which we've done the research--that is, how we've organized ourselves, the kinds of technical, material, logistical, financial, and social support we've had, a few examples of the research we've done, and how we've shared the results with each other and with colleagues at URI and beyond. Judy and John will each discuss in more detail some of the research they've done and are doing, including in their discussions some explanation of how and why they got involved, how it went, what they discovered, and what they've gotten from it all. We'll finish up with some final comments on classroom research as a collaborative, fun enterprise.

The Context

The Instructional Development Program (IDP) was established at URI in 1975. Its staff of two full-time professionals offers individual consultation and a variety of workshops and other services to faculty interested in working on their teaching. Since 1978, an average of twelve to fifteen faculty a year have been selected as Teaching Fellows for a year in a fairly intense program which includes an orientation, a late summer workshop series on course planning, a seminar on college teaching that meets every two weeks, consultation on their classroom teaching, and a good deal of experimenting with new teaching strategies.

About 150 faculty have been Teaching Fellows and many of them find that they miss the stimulation, the cameraderie, and the regularity of informed conversations about teaching after their year-long stint is done. The IDP had been looking for a peg upon which to hang a follow-up program and decided that "classroom research" was just the thing when they heard Pat Cross talk about it back in 1986. So, in the spring of 1987, veteran Teaching Fellows were invited to join in planning a program to encourage faculty to try out and assess new (for them) teaching strategies or to examine carefully the effects of policies or techniques already in use. Perhaps fifteen,

including John Stevenson, joined to do research that first year. Another fifteen or so participated the next year, and ten to fifteen current or veteran Fellows the next. Virtually all of the faculty who have done classroom research at URI, then, have been veteran or current Fellows who have already demonstrated their interest in looking closely at their teaching and engaging in conversations about teaching with others.

The role of the IDP staff in all of this has been, most importantly, to get people together. They send out the invitations each year, set up meeting times and locations, send out reminders. They plan the twice-monthly meetings and facilitate work and conversations at those sessions. They also suggest possible research designs, help design data collection instruments, tabulate data, do analyses, help people write up their results. They pay for the dinners following each meeting, for surveys and questionnaires, for printing and copying. Back when they had grant monies, they even paid for travel to conferences for several researchers.

Probably thirty-five to forty faculty have completed classroom research projects over the past four years at URI (keeping good records is not one of the things that IDP has done). Their experiments and studies have included: investigations of how and how much students prepare for classes and exams; using writing-to-learn exercises in a variety of courses; interactions between student learning styles and faculty teaching strategies; evaluations of long-used term projects; varieties of small group work; and the effect on preparation, engagement and enjoyment of differing expectations of being called upon in class. At least eight have been written up and published; others have been presented at conferences. Several of the faculty have shared their experiences and findings with URI colleagues during our annual workshop series for faculty and teaching assistants. All shared their excitement, frustration, new knowledge, surprise and insights with their fellow classroom researchers as they went along. For many, that was probably the most worthwhile part of all.

The Effect of Volunteer Work on Moral Development

Judy Boss

My interest in classroom research is a direct result of my participation in the Instructional Development Program. I started out cautiously with relatively straightforward classroom projects, such as small group discussions, study groups, minute quizzes, and students' ratings of my classes. Encouraged by the success of these projects, I undertook a more ambitious study of the impact of community service volunteer work on ethics students.

As an ethics teacher, I often get students who seem unable to make reasoned moral choices and whose lives seem to them to be a series of poor decisions and moral tragedies. As someone lamented a few years ago in the *New York Times*, today's college students are being permitted, in the name of scientific objectivity and value-neutrality, "...to grow up as ethical illiterates and moral idiots, unprepared to cope with ordinary life experiences." Instead of being taught how to make effective moral judgments, they are being told that morality is all relative or a matter of personal opinion. This "counsel of despair" is often impressed on our students under the guise of tolerance.

I believe that ethics courses have the potential to counter this trend toward relativism and anomie by helping students to recognize situations that call for moral judgment and action and to make more satisfactory moral decisions. I'm also convinced that merely turning students into academics who can recite the names of theories and famous ethicists is not enough.

The Study

Previous research in this area found that students who are involved in an active, rather than a passive, learning environment tend to score higher at the end of the year on tests of moral reasoning (Rosenshine & Stevens, 1986). In light of this, I wanted to find out if students who engaged in community service volunteer work as part of a course requirement would score higher at the end on a test of moral judgment than students who did not. I expected that students who put moral principles learned in a classroom into practice would be more likely to internalize the principles and, hence, be able to apply them in other situations such as those tapped in a test of moral reasoning.

I have used volunteer work before in ethics classes, and students seemed to enjoy the experience. In fact, the majority continue with their volunteer work after the semester ends. I teach two ethics classes each semester so I had ready-made experimental and control groups of about forty students each. The class that served as an experimental group was selected randomly, and students in that class were required to complete twenty hours of community service volunteer work and keep a journal of their experiences. URI's Clearing House for Volunteers matched students with suitable community and campus-related agencies, so the volunteer work was done relatively independently of me and the classroom. The control class was given the choice of a more traditional essay assignment or an added test in lieu of the volunteer work.

Moral development was measured by the Defining Issues Test (DIT), a multiple choice test devised by James Rest in 1979 as a modification of Kohlberg's test of

moral development. Both classes completed the DIT on the second day and during the last week of classes. I did not see their completed tests; all were scored at the semester's end by the Center for the Study of Ethical Development at the University of Minnesota. Students also completed a questionnaire at the end of the semester about their perceptions of their own moral development over the term.

Results and Discussion

I used three sources of information in my study. One was the early- and late-semester DIT scores. I've just received the results of the tests at the time of this writing and have not yet had time to analyze them beyond calculating the mean test scores for the two groups. However, these calculations are certainly encouraging. While the mean value of the early-semester DIT scores are about the same for both classes, the class which did the community service volunteer work has a considerably higher mean score on the test given at the end of the semester.

A second source was the questionnaire students completed at the end of the semester. They were asked: "Do you think you have improved, in terms of being a more moral person, over the course of this semester?" Their responses could range from "I'm worse" (1), to "No change" (4), to "Yes, a lot" (7). In the experimental group, 40.6% checked 6 or 7. Only 16.7% of the students who did not do volunteer work marked a 6 or a 7.

The third source I used was the comments in the volunteers' journals. Students were asked to finish up with a paragraph stating what they got out of their volunteer work. The comments were almost unanimously positive. The majority of students mentioned an increase in self-respect as a result of the volunteer work as well as the satisfaction they got out of helping others. Several students talked about how the experience helped rid them of negative stereotypes, especially of the homeless and the elderly. Others wrote about their new appreciation of the contributions of community service organizations. About 80% said they planned to continue their volunteer work.

To a philosophy teacher with training in psychology and human development, this project was an exciting opportunity to use skills from these divergent areas. Also important, however, was the support and encouragement I received from the IDP. It provided funding for buying and scoring the DIT and help in designing the study. The regular meetings with other researchers and the IDP staff provided continuing encouragement. That, and the enthusiastic cooperation of my students, made the experience one that was completely enjoyable to me.

Teaching and classroom research are natural bedfellows. Students are no longer passive spectators of the teaching process. Not only do they enjoy the break in the

routine by trying out new things, but they also appreciate being able to contribute actively to the teacher's learning.

Small Group Activities in a Large Class

John Stevenson

I see two threads in the background that led to my involvement in classroom research. The first was my ongoing relationship with the IDP. For a number of years prior to my adventures in classroom research, I had been participating in seminars and workshops conducted by the IDP, and I had long since discovered the fun of collaborating in a supportive network of teaching-oriented faculty. The opportunity to join in a new project would probably have appealed to me whether or not the objective was classroom research.

The second thread was my growing frustration with my struggle to teach in large-classroom settings in ways that would actively involve students in the learning process. I was already experimenting with teaching innovations in that context, so the idea of a more systematic look at how I was doing made sense.

I have been teaching a 500-student introductory course regularly for many years. I use a microphone and an overhead projector for the two lectures each week, and students meet in small recitation sections with a graduate teaching assistant for a third weekly class meeting. I am not a particularly charismatic speaker, and in any case I believe students will master the course content much more effectively if given opportunities to discuss issues, apply concepts, generate examples, and write down their conclusions.

For several years, I had been using small group discussions in some of my other courses to provide the opportunities described above, and I felt these activities were beneficial. Despite the special logistical challenge, I decided to try this teaching method in my large introductory course. With the help of IDP staff and colleagues who were developing projects of their own, I devised a set of small group activities and a research plan for exploring their value. My goals were to increase the personal involvement of my students with the ideas in the course and to give them practice in applying those ideas. I wanted to evaluate a teaching innovation for me--and have some fun collaborating with my colleagues along the way!

The Study

I developed two general kinds of activities. "Involvement" activities posed questions without right or wrong answers, questions I hoped would intrigue students with the material and give them a chance to express their opinions. "Practice" activities called for answers to concept application questions of a sort that might appear on an examination. Initially I presented involvement activities near the beginning of a class, while practice activities were more likely to occur near the end of a class period.

For both kinds of activities, there were standard features of presentation. The activity was presented as a highly structured two-to-five minute task that invariably required a written response. The class (all 500) were required to divide into groups of two or three students. Even with fixed seats in an auditorium, this proved quite feasible. All group members were asked to sign their group's response and to turn it in, although I did not grade the responses. Tasks were presented on overhead transparencies.

I assigned the first small group discussion on the first day of class; it dealt with common perceptions of what psychologists do and common fears about the intrusiveness of psychology research. I explained that this kind of exercise would be common throughout the semester, that I required everyone who came to class to participate, and that I would ask non-participants to join a group or leave. The norms were set early, and I had very few overt problems. Often I gave feedback to the class regarding their responses, sometimes soliciting brief oral answers or a show of hands immediately, and in other cases reporting back as a part of my lecture in the subsequent class. Here are a few examples of activities: state a testable hypothesis for the study of love (practice); decide whether love should be scientifically studied (involvement); match questions about love with appropriate research methods (practice); predict the outcomes of two studies on the effects of pornography (involvement). There were twelve of these exercises, evenly split between involvement and practice.

I could not randomly assign my students to different learning experiences, so I chose to randomly assign course topics to different teaching methods. For some topics (e.g. physiological psychology, motivation, social psychology) I presented involvement activities; for others (e.g. learning, development, personality) I offered practice; and for a third group (e.g. perception, cognition, abnormal) I stayed with straight lecture.

Results and Discussion

How did I measure the effects? One source of information was a rating with comments completed by students after each exercise. I learned two important things

from this. First, activities conducted near the end of a class period were generally rated lower, and comments clearly pointed to timing as the problem. I revised my activities so that they no longer occured near the end of class. Second, there was tremendous variability in whether and what the students liked. In response to the same exercise, I would receive comments as variable as "I rated this activity so highly because it helped me to follow the lecture intelligently and critically; I think I learn more this way" and "It's boring; you don't learn as much from a group; most people haven't read the chapter yet." From this diversity of comments, I gained an enriched and renewed sense of the diversity of students in my classroom and of the importance of providing a variety of learning opportunities to respond to it.

A second source of information was a questionnaire administered at the end of the semester. Students indicated how much interest they had in learning more about each topic in the course, they rated the activities overall, and they indicated how frequently they would recommend that involvement-type activities and practice-type activities be done in the future. There was a strong trend for interest to be higher for topics associated with involvement activities, and a slight trend for preferred frequency to be higher for practice activities. A substantial majority of students felt that both kinds should be offered at least weekly.

I concluded that both sorts of activities were having a useful impact and that student variability was interacting with the differing purposes of the activities. I also gained a new appreciation for the importance of timing. (For a more complete description of the study, see Stevenson, 1988).

Although I am a social scientist used to doing research with human subjects, this was a new kind of experience for me. It was hard work! All the usual challenges of large-classroom teaching were exacerbated by the special demands of the study. Without supportive colleagues and a great deal of help from the IDP staff, this would have been overwhelming. However, the experience was also fun. It kept me interested in the challenge of teaching large classes and gave me new things to try. I am now embarked on a new classroom research project in the same course, this one dealing with monitoring and improving student study habits. Again the creative juices are flowing, and I am renewing my bonds with teaching-oriented colleagues who are trying similar projects in their classes.

Some Final Comments

We love sitting around listening to and talking with colleagues who are excited and concerned (and often terribly frustrated) about their teaching. We enjoy the challenge of working together to clarify questions and devise practical strategies for

beginning to answer them. It's great fun to see raw data, analyze them, and compare results with expectations. We like those conversations about what it might mean, what implications findings have for practice, how the research might be done another time, what new issues the results raise. And it's especially fun when people discover another way of doing things that works well or find that a regular part of their course really does work as intended.

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Classroom Research in Undergraduate Math Classes

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Introduction

My formal introduction to classroom research was at a summer seminar sponsored by NCRIPTAL at Western Carolina University in June, 1988. At this conference I chose to be part of a group working on classroom research directed by Dr. Tom Angelo. The basic assumption of our group was that classroom teachers can, through close observation, the collection of feedback on student learning, and the design of experiments, learn more about how students learn.

After over thirty years as a classroom teacher of undergraduate mathematics, I am still looking for ways to improve my teaching. My doctoral thesis was a study of different ways to teach the limit concept to beginning calculus classes. I found at that time that little formal study of teaching and learning mathematics at the college level had been done. It appeared that most college teaching of mathematics was based on ways we had been taught--some good and some not so good. Classroom research seemed to offer some hope of improving the teaching and learning process.

My Understanding of Classroom Research

In the NCRIPTAL seminar referred to above we defined classroom research as the process of involving teachers in the formal study of teaching and learning. We had some lively discussions as to whether or not this type of activity could properly be called "research" but did agree that something of this nature needed to be done regardless of what it is called.

We started with several basic assumptions:

1) The quality of student learning is directly related to the quality of classroom teaching.

2) Teachers need to make their goals and objectives clear to the students.

3) Improvement of teaching and learning is most likely to occur based on research conducted by teachers themselves.

4) Classroom research can be done by capable and dedicated college classroom teachers (Cross, 1988).

Need for Classroom Research in Math and Science

Many surveys and studies have been conducted and reported which purport to show that the learning (and therefore, teaching) of math and science is not as high quality as we would like it to be in this country. Many suggestions have been offered to remedy this situation. Ultimately, it seems that a large share of the blame is placed on the teachers. Many of the participants at the NCRIPTAL conference were teaching and learning consultants at their colleges. Several of them complained about what they perceived to be a general lack of concern for improvement of their teaching on the part of science and math teachers at their schools.

While much of this criticism is justified, some things are being done. The National Council of Teachers of Mathematics has recently published a set of standards for teaching mathematics (NCTM, 1991). The Mathematical Association of America in engaged in an extensive project designed to improve the teaching and learning of calculus (MAA, 1988). But what can we do as individual classroom teachers? I submit that classroom research offers a reasonable place to start.

Starting in Classroom Research

As part of our participation in the NCRIPTAL group on classroom research, we were asked to design, carry out and report back on a classroom research project at our home institution. I decided to work with my third semester calculus class in the fall of 1988 to try to improve their learning of concepts and help them assume more responsibility for their learning. For years my method of teaching calculus was to begin each class period by discussing (which often degenerated into the instructor demonstrating) problems from the homework assignment which had caused difficultly for some students. I learned many years ago that I got more work from students if I collected these assigned homework problems daily at the beginning of the hour. But I was still disappointed at the apparent lack of learning of overall concepts with most of my students. They were able to master the mechanics of calculus rather well but were having difficulty understanding the underlying concepts.

During the seminar each member of our group was given a copy of *Classroom Assessment Techniques: A Handbook for Faculty*, by Cross and Angelo. This book is filled with several common sense, relatively simple techniques that can be used by the classroom teacher to evaluate teaching and learning. One of the techniques was labeled "Self-Diagnostic Learning Logs," and it seemed to fit my situation. These logs

were defined as "essentially limited, tightly focused versions of the academic journals already used by many teachers." It was suggested that they would be "most useful to students in courses that provide repeated, frequent opportunities to work on similar assignments or performance" (Cross and Angelo, 1988). This seemed to fit my class situation.

So, inspired by the summer seminar and the above-mentioned technique, I added the following paragraph to the syllabus for my third semester calculus class taught in the fall of 1988: "I want each of you to keep a self-diagnostic learning log of each homework assignment. The following information should be included for each assignment:

1. List the main things you learned from this assignment.

2. List points that are unclear to you. Give examples if possible.

3. Write question(s) you need answers to before you can understand the points listed in 2."

There were fourteen students in the class. I was not particularly pleased with most of the early responses I got on the learning logs. They tended to be superficial and weak. I collected, read and commented on them daily for about two weeks and did not see much improvement. Finally, out of desperation, I announced to the class that the daily learning log would count as 30% of their homework grade (which was about 12% of their course grade). I realize this is contrary to the suggestions given in the handbook mentioned above. But it did work for me in that the quality of the logs improved dramatically. After about a month I quit grading the logs, although I still read and commented on them. The students continued to write them in a satisfactory manner.

I did not do a statistical analysis of the results, but I offer the following observations: 1) questions about homework problems improved in quality: 2) there were no D's or F's in this class (there usually are); 3) several, but not all, students did better that usual in the following math course (which I did not teach); 4) our Writing in the Disciplines committee was pleased to see this type of writing being encouraged by a math teacher; and, (I'm not sure if there is a connection here, but) 5) on our institutional evaluation of courses by students there is an item to evaluate the text used in the course--all students rated the text as excellent. I had used this same text for three years and usually got about a 50-50 response on this item.

I felt the project a success and continue to use it with my calculus classes. It should be noted this technique requires a lot of teacher time to read, comment on and

return these logs quickly in order for them to be effective. I believe it is worth the effort. Some students who hesitate to speak up in class will write good thought-provoking questions and comments. Some get rather frank. I try to be positive and encouraging in my responses to them.

Suggestions for Action

I hope these remarks have created some interest in starting a classroom research project. If so, I suggest you might start by clarifying goals for your teaching and your students' learning. Focus in on one goal on which you can evaluate your progress. Plan your lessons and student activities to attain that goal. Collect feedback from your students and analyze it. Respond appropriately by redesigning, if need be, and follow-up. Improvement of the teaching-learning process can be a rewarding life-long project.

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Assessing Student Awareness of Dialectical Thinking--or "Connecticut"

William Palmer

Alma College

How can I assess whether my college freshmen understand a paradoxical way of thinking? How can I assess whether they use such thinking consciously when they write? Through simple metacognitive writing techniques, I have gathered evidence showing that most of my students do understand and can use dialectical thinking: creative and critical ways of seeing differences and similarities.

During winter and fall terms of 1990 I experimented with my English 101 College Rhetoric course. I engaged in what K. Patricia Cross (1989) calls "Classroom Research" which she defines as "any systematic inquiry designed and conducted for the purpose of increasing insight and understanding of the relationships between teaching and learning" (p. 17). In the course I wanted students to construct a greater awareness of inquiry--for generating ideas and evaluating them. I used dialectical thinking as a primary tool: a means of having students think consciously about how they write, think, and learn.

A problem with trying to teach this kind of thinking is what to call it. "Dialectical" seems too obscure for freshmen. "Oppositions" focuses too narrowly on opposites rather than on contrasts, contradictions, paradoxes, and incongruities that dialectical thinking includes. I have settled on the word "connecticut" to help students develop the habit of looking for connections and contrasts. An oxymoron, the word exemplifies the kind of thinking it means: the "i" in the center is what connects and cuts. Each of us synthesizes and analyzes personally. The word also suggests "art" and "science": the etymology of "art" is "to join"; the etymology of "science" is "to cut" (*Webster's New World*). This dialectical state of mind represents a way of thinking central to the liberal arts.

In the course I used dialectical structures to design and sequence writing assignments. I tried to alternate creative and critical kinds of writing, such as a short essay using analogy followed by a longer argument/persuasion paper addressed to a real audience. I hoped this alternation would help students construct a better understanding of how different forms of writing are essentially similar: all involve inquiry--generating and evaluating ideas. I wanted students to see that creative and

critical thinking "can interact productively instead of fruitlessly fighting or conflicting with each other" (Elbow, 1986, p. 233).

I also periodically used concrete activities in class to help students see different perspectives. For example, after students wrote a first draft of their argument paper, I asked them to put themselves in somebody else's shoes--literally. I wanted students to ask themselves if they were trying to see from their audience's point of view. Students took off their shoes and tried on another pair. They experienced how difficult and awkward it is to wear somebody else's shoes--or perspectives. However, I was not sure if students understood connecticut unless they demonstrated their awareness of it in a metacognitive way: that is, by consciously thinking about dialectical thinking.

Metacognitive Writing Techniques for Assessment

To assess student understanding of connecticut, I used simple, informal writing techniques. Usually students did these in class for five to ten minutes. The writings were ungraded and sometimes done anonymously. These assessments provided me with information on how well my students were learning what I was trying to help them discover.

Assessing Connecticut in Logs

Before students wrote an essay based on a contradiction or paradox, I had them write a log--an informal dialogue with themselves and with me--in which they tried to generate and explore several possible ideas for their essay. This log was due our next class. I specified that I wanted at least two pages, the log would be ungraded, but I would write comments on it. In doing this log, students wrote about what they could write about, thus engaging in simple metacognition. Here is a part of Kelly's log:

> Some ideas I got are: my cat and dog (friends vs. enemies), just my dog (so ugly he's cute), how I act and how I really feel sometimes, tough on the outside, soft on the inside (me when it comes to guys), a slob and a neat person, quiet (still sounds if you listen hard enough), crying (happy or sad), adult and child, mom and dad, win and lose, ceiling and floor.

This log shows Kelly generating topics from her own personal experience. From the log she chose an idea that intrigued her and wrote an essay titled "Quiet's Noise." In her conclusion Kelly demonstrated her use of dialectical thinking:

> Anywhere you may be, it can never truly be quiet, because if you really listen, there is still noise. In fact, quiet contains more noise than loud does; it just contains noises that are seldom noticed. Loudness covers up all of these usually undetected sounds and so is just one big noise. Therefore loud is really quieter than quiet and quiet is really louder than loud! Confused? Merely try to listen once, and you won't be any longer.

In typical dialectical fashion, Kelly reversed stereotyped views of loudness and quiet, unveiling a paradox. Prewriting logs showed me that most students could generate several ideas from deliberately exploring connecticut.

Assessing Connecticut in Cartoons

To see if students could apply the notion of connecticut to analyze humor, I gave them a page of cartoons. I asked students to respond to this question: "In what ways do these cartoons involve connecticut?" I told students this was not a test, they would not receive grades, but I would collect and read what they wrote.

One of the cartoons was "Off the Leash" by W. B. Park (1986). It showed two ducks in a pond: one frantic duck sees a hunter with a rifle pointed at the other duck; so the duck screams to its friends, "Duck!" Concerning this cartoon, a student wrote, "The connecticut is that the duck is yelling 'Duck!' so the other duck won't get shot." While this comment paraphrases what happens, another student showed a higher level of dialectical awareness: "The cartoon involves connecticut by taking two meanings of the same word and showing the difference." In another response, a student defined connecticut for herself before she applied her idea to the cartoons:

> Connecticut is a way of relating unrelating ideas; it is also a sort of reversal of what you are used to, a kind of play on words. In the cartoons the writers use normal occurrences and flip them in a way so that we are forced to look at them differently. For example, we do not usually think of a duck ducking.

This student's definition of connecticut as "a way of relating unrelating ideas" is clear and appropriately paradoxical. She demonstrated a solid understanding of dialectical thinking.

This simple metacognitive writing activity, taking ten minutes, helped me see what students saw. The technique enabled students to construct in their own words their understanding of connecticut, an ambiguous idea they had been learning for a few weeks. The activity provided me with some verification that students could apply the concept of connecticut to help them analyze creative thinking.

Assessing Connecticut in a Complex Text

To assess student understanding of connecticut used in a more critical way, I had students do a short writing in class based on the psychological report "Some Conditions of Obedience and Disobedience to Authority" by S. Milgram (1965/1987). Before we discussed the reading, I had students do a ten-minute writing on this question: "In what ways does Milgram's report contain or exemplify connecticut?" Several students were confused by this question, perhaps because the report was long and technical and my question too focused or unexpected. One student began by acknowledging his confusion and then revealed his excitement at arriving at an answer:

> I am a little confused on this subject because I don't see examples of connecticut. Eureka! When one of the subjects was administering a shock to a victim, he obviously objected to the idea and verbally stated this; however, because the doctor told him to keep going the man kept on shocking the victim. I suppose this is what the story is all about--getting people to do something that they don't want to do. So I guess the whole story is an example of connecticut.

Like this student, most students were able to see and express the essential contradiction in the behavior of people in the study. As with the other metacognitive writing techniques, I did not grade the Milgram writing. My purpose was not to test students but to assess whether they could apply the concept of connecticut to help them analyze a complex report.

Assessing Connecticut in a Human Anatomy Laboratory

In my fall term sections of English 101 I investigated whether students could apply connecticut to their experience of visiting our college's human anatomy lab. I wanted students to analyze their own firsthand experience of listening to the lab director Dr. John Davis and then viewing three dissected human bodies. Students wrote on this question: "Was our visit to the human anatomy laboratory an example of connecticut? (Circle one) Yes, No, Not Sure. Please explain your answer."

Out of 30 students (from two classes) who visited the lab, 22 circled Yes, 0 circled No, and 8 circled Not Sure. Here are some student responses:

> The obvious contrast is life and death; then there's healthy and sick cadavers [meaning new and old cadavers], and what can be learned from cadavers to keep live bodies healthy.

They were real live dead people. Quite the contradiction.

Dr. Davis asked us to do something he would not do [donate their whole body to research--Davis explained that most scientists and physicians who work with dissected bodies do not donate their own].

These responses show students relating connecticut to contrasts and contradictions they observed in the lab. Most students did this. Yet a few expressed difficulty with the question. One wrote, "I can't think of any ways that it [the visit] would be a connecticut." Another student revealed her confusion with the meaning of connecticut, "The only thing that struck me was when someone mentioned that death was an important part of life. That's not really connecticut, though, or at least I don't think it is." Here, ironically, the student identified a paradox but did not think it exemplified connecticut--or paradoxical thinking.

Final Assessment of Connecticut: A Survey

To assess student awareness of connecticut once more, I had students complete a short survey during the last day of class. These were done anonymously. On the survey I wrote to students, "Please do not write what you think I want to hear. Be truthful with your responses." The first question was, "What is 'connecticut' to you? Try to define it as well as you can. Give various examples of it to show what you mean."

The definitions of connecticut represented each student's synthesis of the idea after twelve weeks of playing and working with it. Here are some responses:

Connecticut involves the connection of two unrelated things in some creative way. Many examples of this are around us everyday: A close friend was writing his research paper about capital punishment and death while he sat in the waiting room of a hospital waiting for his niece to be born.

Connecticut is when something is the same but different. It's hard to explain on paper. The words there, their, and they're for example. They are connected by the sound of them when said, but cut by the meanings of them.

Connecticut is seeing what isn't there, but is. It is looking beyond the initial opinion, to the reasons why. It is noticing the unnoticeable on purpose. It is exampled by "die-sect" [in reference to seeing cadavers].

In these responses students defined the idea in their own words, using their own examples--ones I had not used in class. Another response is noteworthy because it contained a dialectical structure itself:

> Connecticut is finding hidden similarities between previously unrelated things [A. Koestler's (1964) definition of creativity I used in class]: relating the mind to a meat grinder, relating love to compost; and finding differences between previously related things: differences between being a mother and a grandma, differences between a street and an avenue" [underlining mine].

By including a reversal of Koestler's definition of creativity, this student demonstrated a keen understanding of connecticut.

Although most students understood connecticut and showed examples of it, some did not. One wrote, "Honestly? I'm still not clear what the hell connecticut is. I think it's creativity for the most part, with a touch of critical thinking thrown in for good measure."

My survey's second question was, "Do you think you will ever think about connecticut after this course? (Circle One) Yes, No, Not Sure. Why or Why not?" Responses:

Winter 1990: (31 students)	Yes = 22	No = 3	Not Sure = 6
Fall 1990: (37 students)	Yes = 31	No = 2	Not Sure = 4

Two students wrote:

> There have been many times when I have been watching TV or having a conversation with someone and I hear a connecticut. I'm always aware of them and I comment on them. Sometimes the person has had this class and knows what I'm talking about. Other times I have to explain. I've even caught myself saying, "That's a connecticut!" when there's no one else around.

> Connecticut is sort of engraved in my mind now; I think about thinking about examples of connecticut.

These comments reveal metacognition: both students acknowledge that they think about their own thinking of connecticut. Such thinking seems worthwhile and self-sponsored for them.

But not all responses were positive. A student admitted that she or he will not likely think about connecticut after the course because, "The term has always sort of stumped me." Another student wrote, "It confuses me and boggles my mind with details. Instead of just writing the paper I got concerned about fulfilling 'connecticut.' I think it takes out spontaneous creativity when you think about it." The idea of connecticut made this student too self-conscious, hindering the composing process. Although most students seemed to benefit from learning about connecticut, some students clearly did not.

During fall 1990 I added a third question to my survey: "Should I continue trying to teach connecticut in English 101?" (Circle one) Yes, No, Not Sure. Why or why not?" Responses: Out of 37 students, 35 indicated Yes; 0 indicated No; and 2 indicated Not Sure.

The extreme positive response to this question surprised me, given the problems some students expressed with the preceding questions. Through their comments students gave me feedback concerning the value of connecticut:

> It gives students expanded views from which to write.
>
> It imposes a different outlook on things that hasn't really been taught before. Even though it is hard to understand for some people doesn't mean you should give up teaching it to everyone!
>
> You learn more if you look at things from more than one view. If things were looked at in only one perspective, how could that be called learning?

However, a student wrote that if I continue to teach connecticut, "an actual definition would really help." But would it? One of the reasons I like using the term is that it is ambiguous: it can have various meanings depending on the person who uses it and the situation in which it is used. If I were to give students "an actual definition" of connecticut, they would likely take mine instead of discovering their own. There is no one right definition of the term.

This end-of-class survey produced useful information. It helped me assess students' understanding of connecticut and their attitudes about learning it. Without being a test, it enabled students to reflect about the idea once more and to draw their

own conclusions on it. It helped me reflect more on my approach to teaching dialectical thinking.

Conclusions

Paradoxically, connecticut can be best taught if I don't teach it. That is, I have learned to develop various activities--utilizing contrast and connection--to help students experience dialectical thinking and to construct their own awareness and knowledge of it.

Using classroom assessment techniques such as metacognitive writing has motivated me to experiment with and to monitor my own teaching. I see myself as a classroom researcher investigating how my students learn.

Assessment has also made me reconsider the name "connecticut." Is it a gimmick I overuse? I try to use the word less toward the end of the course and to use "dialectical thinking" more--giving students a label that more people will understand. But for my freshmen writers "connecticut" appears to work as a playful yet instructive name. It helps most students think about how they think.

Helping students become more aware of how their minds work is important. As Pat Hutchings (1990) stated, "There's considerable evidence now that students who are self-conscious about their processes as learners are better learners, that they learn more easily and deeply, and that their learning lasts" (p. 7).

Through assessments I have learned that most of my students have seen connecticut as a more creative than critical way of thinking. My goal now is to achieve a greater balance: to help students use dialectical thinking as a way to generate and to evaluate ideas. But as Dewey (1933) cautioned, "No rules can be laid down for attaining the due balance and rhythm of these two phases of mental life" (p. 281). The balance rests ultimately with each student: the "i" that connects and cuts.

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What Effect, If Any, Does Collaborative Writing Have on an Individual's Writing Ability?

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During the fall 1990 semester, I worked on a classroom research project with one section of College Writing (WTG 100). Students are placed into this "advanced developmental" writing course based on results of standardized tests and a holistically scored essay. The primary goal of the course is to improve students' writing abilities by increasing their awareness of the choices they need to make as authors. Two important elements of this awareness of choice are knowledge of the revision process in writing--what it is and how to use it--and knowledge of the role "audience" plays.

Knowing that many students improve as writers over the duration of developmental courses, I wanted to study whether any particular teaching/learning techniques were more valuable than others for a majority of the students. Because WTG 100 is a process-based course and because collaboration plays an important role in quality developmental education, it seemed reasonable to focus on the role collaboration plays in the learning process. Thus, my research question for this project was: will students become better individual writers if they are urged also to be collaborative writers? Along with this question I wanted to know if such a classroom research project could be adapted to other courses--particularly content courses.

Activities During the Research Period

The premise for my research was that if students had the opportunity to work in a group and write a collaborative paper, they would each, individually, benefit from the group's process. Ideally, based on my premise, each student would take some part of the writing process from the group and add it to his or her own writing process, therefore becoming a better writer because of the group experience. To discover if this hypothesis had any basis in reality, I used a process self-analysis classroom assessment technique devised by Pat Cross and Tom Angelo (1988).

Briefly defined, a process self-analysis (see example in Appendix 1) is a record of the steps followed and the time spent on each step to complete a process--in this case, the writing of an essay. During the second week of the course, after I had introduced

and outlined the requirements and expectations, I discussed with the class the details of process self-analysis and did an example in class. At that point, I explained to the students that they would need to keep a process self-analysis for each essay they wrote. In other words, about every two weeks, they could expect to draft and revise an essay and complete a process self-analysis. When I returned their evaluated essays with comments, I also returned their process analyses with comments--usually short notations focusing on the increased time they spent on particular steps of the process or noting the omission of a step that they had recorded before.

A second evaluation tool I used was a self-designed questionnaire about student revision strategies (see Appendix 2). This questionnaire focused on the students' understanding and use of revision techniques. I administered the questionnaire the first and last week of class to see if any changes in knowledge or use of revision occurred during the semester. However, because the students received no feedback on the questionnaire, it can't really be considered a classroom assessment technique as defined by Cross and Angelo. However, the questionnaire was a valuable tool that gave me a picture of what the students knew before we started the course and what they absorbed from the course over the semester. Because of the information it provided, it is included in this report.

Problems Encountered During the Project

Even though I gave an example of a process self-analysis to the class and explained it, the example was not as helpful as I would have expected. Because writing is an individual process, some steps of it are individual ones and are not transferrable. (For example, in several early process self analyses, students repeated my example steps in their own analysis, which meant that in their papers about the similarities and differences between written and oral English they had a step where they defined the word "education," a step I used when recording my process self-analysis for a paper about the need for collaboration in the elementary schools.) Thus, because writing is not formulaic, each student produces process analyses of varying steps and varying understanding of the processes or steps he or she uses. For the first essay, due three weeks into the course, the students produced analyses that were reasonable but incomplete (see Appendix 1). I wondered whether this incompleteness was due to their lack of familiarity with the concept of process self-analysis or whether it was because the writing they produced was itself incomplete.

When I tried to find exactly what caused the lack of completeness, I realized that one of the better writers in the class also produced the most complete process analysis. This realization made me wonder if better writers were better because they were more

familiar with the writing process than less able writers. Unfortunately, because this question was not part of my initial research project, I did not pursue it, although at the time, it seemed a more important question than my initial one. My problem here was that I didn't allow myself the latitude to follow through with this question anyway. I felt obliged to stick to my original plan, and because of the time it took to analyze and comment on each individual's analysis, there was no time left to consider the interesting question of what role a student's prior knowledge of the writing process played in his or her ability to write a complete process self-analysis. In hindsight, I might have learned more from pursuing this question of writing process knowledge than I did from forging onward with my original question.

Additionally, the short comments I made on the process self-analyses seemed to have little effect on the students' performances in future analyses. So, although I did give feedback on them to the students, the feedback does not appear to have been appropriate or beneficial. Time constrained me from giving more in-depth comments and by the time I realized that the comments I was making were not overly helpful, I had already compiled results from the first two process self-analyses and was just awaiting the third one.

Findings from Project

1. Process self-analysis

Students wrote their process self-analyses in list, sentence or note form based on no formal criteria but loosely based on the example. But again, because there were no formal criteria and because writing is an individual process, the steps that the students enumerated, if similar, were worded differently and there were many times when idiosyncratic steps were obvious. To compare their processes I needed to be able to categorize the steps listed in their process self-analyses. To do this, I devised a system of "naming" each step and placing it into one of five categories in the writing process: pre-writing, writing, mid-writing, revising, and editing.

Pre-writing, by common definition, involves those activities done before writing takes place. These activities include: brainstorming, freewriting, reading, thinking and note taking. Writing includes drafting and outlining. Mid-writing, as far as I know, is a new category and in it I include the steps a writer takes after the writing has begun but before changes are made. Mid-writing includes asking people to read the piece as written thus far, seeking their ideas. It also includes searching for more information, talking to others, and doing more reading. The fourth step, revision, includes changes in word choice, paragraph breaks, content, focus, tone, style, and audience slant.

Editing, usually the last stage, deals with mechanical issues such as grammar, spelling, and punctuation. The classification of steps and the rates of occurence of each for the first three process self-analyses are outlined in Appendix 3.

2. Revision questionnaire

Due to the length of the questionnaire, its individual questions and tallies of answers are located in Appendix 4. Only the more significant findings are discussed here.

From the initial student definitions of revision (question 1), it is evident that most students entered the course with only a vague understanding of revision. In fact, many defined revision merely as a "fix-up" process. By the end of the semester however, the majority of students defined it as a process of re-looking at the content of a paper and adding to it to clarify ideas. In question 2, which asked how students used revision, there did not appear to be any significant change between the two administrations of the survey in the students' reporting of the processes they used to write a paper--with one notable exception. Initially most students said that when they wrote a paper, they wrote it, re-read it and fixed spelling and punctuation errors. They said this at the end of the course, too, except many students included an additional step in their process--asking someone else to read their paper before handing it in. As far as audience awareness is concerned, most students in the beginning of the course stated that when they wrote a paper, they wrote for themselves. At the end, all said they wrote for "a particular body" (for example, a class, a teacher), depending on the purpose of the piece.

Analysis of Findings

1. Prewriting

In a class of twenty-three students, fourteen of them (or about 61%) reported some sort of prewriting activity as part of their process in their first individual essays. With the collaboratively written paper, all twenty-three students reported engaging in prewriting activities. However, this marked increase can probably be explained by the group process itself. Obviously, students in a group needed to put forth to work as a group, arrange meeting times, determine individual responsibility, and decide on the content of their paper. Each of these elements, or stages, then became part of the group's process self-analysis and was categorized as pre-writing. Unfortunately, the increase in the amount of pre-writing conducted during the collaborative paper did not carry through to the third paper (the individual one following the collaborative one).

This indicates that the pre-writing stage in the collaborative work did not contain much that benefitted individual students' writing processes. In fact, in the third paper, fewer students engaged in prewriting strategies than they did in the first individual paper. This could be a direct response to the preponderance of time they had spent on this stage in the collaborative paper. It could also be a response to understanding more about their own writing process and believing they had less need to engage in pre-writing than they did earlier in the semester. However, neither the questionnaire nor the process self-analysis were designed to determine reasons for change, so the decrease in pre-writing cannot be explained in any substantiated way.

2. Writing

Throughout the three self-analyses, the steady increase in the number of students reporting steps used in the second, or writing, phase seems attributable to a growing awareness of the process self-analysis itself. It is probably more in response to my comments on their analyses than anything else since, obviously, writing must occur to create an essay. However, the increase in responses between the first individual and collaborative papers seems to come from students viewing the essay as a combination of parts rather than as a whole. For example, steps like "write the first paragraph," "combine parts" and "write introduction"--steps that had been omitted in the first analysis--now appeared in the collaborative work. Whether this occurred because of the group activity or because of my comments on their first analyses is unclear. Because the third analyses were similar to the second in the types of responses that students recorded, I imagine students were developing more detailed awareness of the writing process; thus, the increase was not necessarily attributable to any one element of teaching, but was probably attributable to a combination of things--the increased awareness of revision just because they were being asked about it, the knowledge of writing processes just because they had to describe it.

3. Mid-writing

Interestingly, there was absolutely no difference between the amount of mid-writing done between the first individual and second collaborative analyses. However, there is a striking difference noted between the second and third analyses, after the collaborative paper had been written. The number of reported steps in mid-writing rose more than 70%, with "have someone read my paper" during this stage accounting for all the increased responses.

Although audience awareness was an important goal of the course, class discussion about this element had not yet occurred. I had not planned to emphasize this aspect for another week or so. Apparently, as evidenced by the strong increase in

the reported amounts of mid-writing, students had learned about the importance of audience already. The learning seems to have come directly from the collaborative paper since that was the only "different" class activity between individual paper one and individual paper three. This increase in awareness of the collaborative nature of reader/writer is also supported by the results of questions 7 and 8, which deal with issues of audience and focus.

4. Revision

There was one less step in the revision process reported between the first individual and the collaborative paper. This is exactly what I had expected not to see. I thought by having many students work together, revision would actually increase in an attempt by all to produce an essay that met the expectations of each. However, what I didn't plan on was each individual in the group writing a separate piece for the essay and then combining the separate pieces into the group paper. It is possible that individual revision did occur in each separate piece but went unrecorded. However, because of the project design, there is no way to substantiate this hope.

On the bright side, there was a 100% increase in revision between the first and third papers indicating that, indeed, the knowledge and use of revision was becoming part of the students' writing process. This was a major goal of the course and apparently it was being achieved. I'm not sure though that the collaborative writing itself led to this increase in revision. There were no recorded steps of "I changed this part to make it sound better because I remember Alicia changed something in the group paper to make it sound better." Rather, many of the revisions were made as a result of what transpired during the increase in mid-writing activity ("She said that she was confused in my third paragraph.").

Apparently, as more students shared their drafts with their classmates during the mid-writing stage of the process, more revisions were made based on audience concerns. To say this occurred because the students wrote a collaborative paper would not necessarily be true. Perhaps the sociability and trust gained from the group dynamics, as opposed to the group writing, is what led to the students' ability to share work and act on peer responses. Unfortunately, because of the design of the project, there is no way to trace definitively the cause for this increase in revision.

5. Editing

There were no significant differences among any of the process self-analyses in the area of editing. Perhaps because editing was not a focus of the first half of the course, this area was neglected by students. More probably, given the abundance of

students who initially believed that revision and editing were synonymous, editing was occuring and had occured since the beginning of the semester.

Conclusions

At the end of this project, I realized my research question probably wasn't the best. If I take the question at face value and ask whether individual students become better writers after working on a collaboratively written paper, the answer would have to be a qualified no. Students do not tend to become better individual writers simply because they are urged to be collaborative writers. I have no documentation to support the idea that the writing of the group paper and exposure to various writing processes within the group, in and of itself, made the students better individual writers. Yet, the fact remains that the writing of all students did improve during the semester. All students left the course with a greater understanding of what revision and audience analysis actually entail, and they left with the ability to use this information to advantage in their writing. But, if I can't claim the improvement was caused by writing the collaborative paper, what was it caused by?

If I look back at the question that arose after I got my first set of process self-analyses (Are better writers better because they have a more complete understanding of the writing process?), I would tend to say that knowledge of the writing process is essential to understanding and using revision techniques. Student papers near the end of the semester were better than at the beginning, indicating a clearer understanding of what consitutes a "good" academic paper. This understanding came primarily from many questions asked on many drafts. The revisions of those drafts, including the answers to the posed questions indicated increased understanding on the part of the students. And, while the essays were becoming better, the process self-analyses were becoming a bit more complete. Students were beginning to understand more clearly the steps they went through while writing. In addition, looking at the results of the twice-administered questionnaire, it is obvious that students have a clearer understanding of the revision process at the end of the semester. Is this clearer understanding of the process involved in writing then what led to the students' better writing?

I would like to think that some important realization happened because of this project. I would like to state categorically that understanding the process is essential to good writing. Yet, I have other classes where students keep wonderful process journals which demonstrate their understanding of the writing process, but they write only average papers. So apparently, one needs more than just an understanding of the process to be a good writer. I would like to say that writing a paper as a group

enabled students to pick and choose among a variety of writing processes and refine one or more for their own use. But I don't know that this happened. I would like to say that my particular sequencing of assignments is imperative to improving writing ability. But I used a different sequence in a different class and the results were just as good.

Apparently, then, I can't draw a generalized conclusion from this project. And, that's what classroom research is. Rather than finding an answer to world hunger, classroom research merely feeds a particular class. In the class I focused on, I arrived at an ambivalent answer to my original research question. What I did discover though was that for this one class, collaborative work played a role in the improved abilities of the students. Again, I emphasize collaborative work as opposed to collaborative writing. For this group of students, the dislike of working as a group, echoed by 85% of the class ("I know you think this is good for us, but I really am too shy to work in a group"), was outweighed by the 100% who felt that they learned a great deal because of the collaborative work ("It was fun to know what other people think"; "I can add some of their ideas to my essays to make them better"). Think of how much time I could have saved if I'd simply asked the students about the effects of group writing rather than all this process analysis stuff. Perhaps, they, more clearly than anything else, could have given me an answer to the question: Do students become better individual writers if they have a chance first to be a group writer.

I don't think I have a much better idea now of why/how students improve as writers than I did when I started. I still wonder where the understanding of the process fits in and I still wonder what occurs during group writing and what effect it has on writing ability. Yet, it's not a total loss. I've learned to recognize the importance of looking at a class as an individual group of individual characteristics able to teach me a great deal about themselves at a particular point in time. I've also learned that indeed my students do learn what I want them to, even though I'm not sure how. And I've reinforced my belief, more strongly than I had imagined, about the importance of collaborative work. For even if they didn't learn to become better writers as a result of writing a group paper, they learned "to share ideas," "work together," and "let someone else read my paper and get their ideas." And more importantly, they learned "to get to know how a group works."

A conclusion that extends this project from the writing classroom to all areas is the simple finding I just mentioned: I could have saved a great deal of time if I had just asked the students. This has important implications for all of us. If we need to know how our students are learning, if we need to know which instructional technique they find most effective, an easy way to find out is to ask them. This is the strongest reason to conduct classroom research. Improving the communication and

understanding between student and instructor is bound to make teaching less frustrating and learning more rewarding. If asking for information gets no answers, ask for written journal entries or ask for end-of-class summaries or evaluations or questions. The feedback provided from all the student writing I kept is a valuable resource to me in my future writing courses. I can draw on it and have an idea of what issues a class might have difficulty with and which ones they seem to grasp easily. But this will not help any of you nor will it help me figure out why one of my next classes is doing well and why one has a drop-out rate of 60%. What will help with my understanding and yours, though, is emphasizing the importance of Cross and Angelo's "feedback loop," where instructor and student gain understanding from each other's perceptions and can make appropriate adjustments.

We are all aware of the challenges and intricacies of teaching. Sometimes we look at our students and "just know" they aren't getting it. But unless we establish someway to validate our instincts, we always run the risk of interpreting their boredom as stupidity. If we ask them to respond to why they look as they do, we may find that our lectures are unnecessary and they are just waiting for us to go on to further ideas. We won't know unless we ask.

Appendix 1

A Student Example of a Process Self-Analysis

1. Look over my lists on computer	5 min.
2. Think of how I want to begin	2 min.
3. Get pencil	5 sec.
4. Started writing	3 sec.
5. Erased my first sentence	2 sec.
6. Started again	10 min.
7. Kept writing	20 min.
8. At the end asked if I was doing it right	5 sec.
9. Finished writing	20 min.

Appendix 2

Early Revision Methods

Student name_____
Date _____
Class _____

Please answer the questions below the best you can. Be as detailed as possible.

1. If someone asks you to "revise" something you've written, what do you think s/he means?

2. What do you do when you revise your writing? If possible, explain the order in which you do things.

3. While you are writing a paper for school, do you make any changes? If you do, please circle the kinds of changes that you most often make. If you make changes other than those listed, please write them in.

   content changes or changes in ideas
   adding more information
   deleting information
   sentence structure or the way sentences are worded
   paragraph order
   punctuation (addition or deletion of)
   spelling
   tone
   word choice
   other

4. If you do make changes in something you've written, explain why you make them and when you make them. For example, do you make your changes immediately (when you write something you don't like), while you are re-reading what you have written, after you are done, after someone has read it, etc.)

5. Do you re-read what you've written at some point? If you do re-read, why do you? When do you do the re-reading? (For example, after you write each sentence? Each paragraph? The whole paper?) Do you let other people read it at any point? Why or why not?

6. While you are writing, if you write something you don't like, what do you do? (Keep going, leave it for now and fix it later, stop until I change it, etc.) What kind of "thing" in your writing are you most apt not to like?

7. Do you ever find yourself changing your mind about what you're writing while you're writing it? If this happens, what, if anything, do you do? What are you most likely to change your mind about?

8. When you write, whom do you write for?

Appendix 3

Enumeration of Process Self-Analyses

Process self-analysis #1 (first individual paper)

prewriting	writing	mid-writing	revising	editing
//// ////	//// /	//// //	//// /	//
////				

Process self-analysis #2 (collaboratively written paper)

prewriting	writing	mid-writing	revising	editing
//// ////	//// ////	//// //	////	//
//// ////				
//				

Process self-analysis #3 (2nd individually written paper)

prewriting	writing	mid-writing	revising	editing
//// ////	//// ////	/// ////	//// ////	///
	////	//		

Appendix 4

Revision Habit Questionnaire Findings

	Initial # of respondents	Terminal # of respondents
1. definition of revise		
vague ("fix" or "make better")	9	1
check for mechanical errors	11	5
check structure	0	5
add/delete content	2	19
check clarity	1	16
2. steps of revision		
mechanics only	13	0
mechanics then structure	6	0
mechanics then content	3	3
content then structure then mechanics	1	6
content then mechanics then structure	0	14
3. changes made in academic work		
content	14	22
add information	11	19
delete information	5	9
sentence structure	16	10
paragraph order	9	10
punctuation	12	6
spelling	14	13
tone	4	8
word choice	18	13
4. when changes are made		
immediately, before going on	14	4
while re-reading, before finished	3	10
while re-reading, after finished	6	9
5. when does re-reading occur*		
after each sentence	9	2
after each paragraph	10	10
when finished	11	23

	Initial # of respondents	Terminal # of respondents
6. see 5		
no discernible differences from 5		
7. changing mind while writing		
yes, go with new idea, throw old away	5	8
yes, stick with old idea	8	2
no	10	5
8. audience		
self	11	0 **
peers	2	0
teacher	3	5
school	6	0
"the audience"	1	18

*Totals equal more than 23 because of answers like: "I re-read all the time. After every sentence, paragraph, and when I'm done."

**The difference here is probably attributable to the change in verbal directions to complete the questionnaire. The second time it was administered, I asked them to fill it out based on what they got out of this class.

Reference

Cross, K. P. and Angelo, T. A. (1988). *Classroom assessment techniques: A handbook for faculty.* Ann Arbor, MI: National Center for Research to Improve Postsecondary Teaching and Learning.

From Johannesburg to Beirut: Three English Teachers Collaborate to Guide and Assess Their Students' Journey

Lou Baltman, Les Beecher, Art Ritas

Macomb Community College

Introduction: Our Tasks

The title of our presentation at Massachusetts Bay Community College's conference on classroom research: "From Johannesburg to Beirut: Three English Teachers Collaborate to Guide and Assess Their Students' Journey," hints at the story we want to tell. We three work closely together (approaching four years now) not only to enliven our teaching, but also to provide a collaborative model for our students. We bring an international focus to our course content in first and second semester basic composition classes, and we each teach in particular, but not exclusively, to one of the ten "Learning Outcomes" that have been identified by the Common Curricular Outcomes Project at Macomb Community College as essential for our students to meet the needs of the 21st Century.

Common Curricular Learning Outcomes

- To think critically
- To use communications skills effectively
- To be flexible and open to new ideas
- To increase understanding of self
- To understand and use quantitative information
- To have a world-wide perspective
- To gather, analyze, and use information in a structured way
- To recognize and assimilate interdisciplinary relationships
- To act and respond aesthetically
- To describe, evaluate, and effectively engage in social interactions

Part One: Teaching to the Learning Outcome "To Gather, Analyze, and Use Information in a Structured Way"

Les Beecher's Story

I chose to teach to and assess the outcome "to gather, analyze, and use information in a structured way" because it is integral to our plans for collaboration and student success in the first-semester basic composition class we designed. We expect our students to read widely and to use purposefully and correctly what they have read. Our assignments to our students must also be purposeful (we are likelier to get a certain result if we ask for it!), so assignments and assessments of varying complexity and focus are part of the class. One such assignment is "The Briefing." Students wrote it late in the semester and relied upon the expertise they acquired as they were guided and assessed toward that assignment. It was successful because it provided both an opportunity for students to develop certain skills and knowledge as they gathered and used their information, and it gave their teachers an opportunity to assess various aspects of student success: learning about student learning as students learned, you might say.

The Briefing

Purpose

Your briefing is the culmination of a major project this semester and so counts heavily as an expression of important learning experiences: listening, planning, organizing, researching, writing with clear purposes, collaborating with others are part of this effort. All are intended to inform the reader of your area of expertise about South Africa. Three different audiences will read your briefing: your classmates, library patrons, and an individual or organization whose response you will solicit.

Subject

The subject of your briefing, of course, is South Africa, but you will need to look at a part of the situation in South Africa to research; that will become your "area of expertise." You must learn all you can about it so that you can write about it with confidence, clarity, and a command of the subject.

Format

It is to be four to six pages, typed, double spaced. Provide a title page. As with most essays, your briefing should be organized in the usual manner: beginning,

middle, end. Begin by explaining what your topic is, develop it in middle paragraphs that clarify the subject and so inform your reader, and conclude in a paragraph that sums up the current status of your subject. Of course you will need to identify sources of information. This is accomplished by using "parenthetical references" and "end notes." (These will be explained.)

Sources

Include at least one reference from our class text, *Apartheid, A Graphic Guide*, references from two other written sources, and at least one reference to a speaker. (Take careful notes on all our speakers; identify the speaker, place, date.) These need to be recent; do not use *Time, Newsweek*, or *Reader's Digest*. (They may be worthwhile and have their place, but try other sources.) Choose sources not more than one year old. Older ones might be acceptable, but check with your instructor first.

Audience

Attention to your writing will not be confined only to the classroom. It will be read by others who will read your briefing in order to become better informed. Thus, assume it will be read by those who want to know what you've found out in your research. Your briefing will be combined with everyone else's into a book format and so become a collection of essays about South Africa.

What Is Behind "The Briefing?"

I want to emphasize that "The Briefing" followed a variety of purposeful activities: students subscribed to the *New York Times*, read a novel (Alan Paton's *Cry, The Beloved Country*), an autobiography (Mark Mathabane's *Kaffir Boy*), a background book (*Apartheid: A Graphic Guide*), and listened to and questioned several outside speakers. Student writing and speaking, and teacher assessment, accompanied these efforts. By the time "The Briefing" was underway, students had put in a heady apprenticeship and so could write with authority and conviction. And they did! I wish there were space enough here to reprint a student paper or two to verify the high quality of student expertise in research, content, and writing.

But What Did Students (and Their Teachers) Finally Learn from All This?

The information below represents data gathered from student responses to the question in the paragraph that follows. The question was asked of seventy-nine

students in English 121 sections during the first week of classes. Assignments throughout the semester were designed to address, among other of the ten Common Curriculum Outcomes, the outcome that students learn "to gather, analyze, and use information in a structured way." Fifteen weeks later the same question was asked again of the same group of students. The significant differences between pre- and post-responses are identified, tabulated, and interpreted below.

> You have the task of preparing a report--oral or written--that is to be given to your second semester college classmates. The report is about any important situation in China that you feel an informed, curious, intelligent student should know about that situation. You have four weeks in which to prepare your report. Describe what steps you would take, what resources you would use to accomplish the task of informing your audience as completely as you can under the circumstances described above.

	Pre	Post
SOURCES: Printed		
Newspapers	63	38*
Specific newspaper	3	13
Magazines	48	35**
Specific magazines	0	9
Category totals	114	95
SOURCES: Reference		
Library	35	45
Specific Library(ies)	0	4
Books (non-specific)	27	41
Research (history, culture, biography)	29	48
Periodical Reference	14	15
Encyclopedias	12	11
Maps, Charts, Atlas	7	0
Almanac	1	0
Category totals	125	164
	Pre	Post
SOURCES: Electronic		
TV News	45	14
Radio	8	2
Talk Shows	3	0
Videotape/Films (news documentary)	6	11
Category totals	62	27

SOURCES: Personal		
Brainstorm	1	1
Jokes as research	11	0
Write for information	4	1
Help from Librarian	0	2
Lectures	0	4
Visit museums, embassy	0	3
Bookstores	0	1
Category totals	16	12

METHODS: Research		
Collect/cut out material, pictures, graphs, information	13	2
Collect facts, statistics, data	9	3
Clipping file	1	0
Write summaries of articles	6	1
Comparisons as research	5	1
Form questions as state of research	5	1
Anticipate the future	2	0
Form an opinion	5	1
Think or review self-knowledge	5	1
Form a thesis	6	0
Analyze/review	6	2
Be watchful or alert	2	0
Choose a topic	29	32
Take, compile notes	23	25
Make an outline	9	20
Make a draft	12	22
Organize, categorize research	12	19
Interviews (personal opinion)	23	13
Interviews (informed opinion)	6	18
Time to assimilate	0	4
Category totals	179	165

PRESENTATION/USING INFORMATION		
Use quotes in paper	3	0
Use a bibliography	5	0
Use footnotes	1	0
Consult with teacher/peer	1	4
Revise paper	5	11
Proofread	1	6
Forming questions for class presentation	1	0
Make a summary for a hand out	1	0

	Pre	Post
Pick a topic interesting to class	0	6
Involve class (questions/evaluations)	0	5
Ask for feedback	0	3
Bring in a speaker, use visual aids or dramatize in some way	0	10
Affective realm: class	0	4
Affective realm: self	0	10
Category totals	18	59

* *New York Times* specified in post-response (9)

** *National Geographic* (2), *People* (2), *Time* (2), *Nation*, *Health*, *Newsweek*

Commentary on Responses

Sources: Printed

In the pre-responses, using newspapers and magazines for research purposes was mentioned 114 times. In the post-responses, there were only 95 references to the use of newspapers and magazines. Especially significant in the post-responses was the mention 22 times of specific newspapers and magazines compared to only 3 such specific responses previously. The specificity indicates that students have become acquainted with real sources of useful information in newspapers and magazines compared to a more general reference to these sources earlier. The diminution of numbers could indicate that students had also discovered that newspapers and magazines as a general source of information were not as valuable as they had thought.

Sources: Reference

A trend in the other direction, however, can be seen in the number of times the use of the library was mentioned in the post-responses. In the first response, using the library (as a general reference, i.e., "I'd go the library...) and/or its materials was noted 125 times. By comparison, in the post-responses specificity increased, e.g., naming a specific library, estimating use of books for background information (from 27 to 41 mentions), and utilizing specific categories of books on history, culture or biographies of regional people (from 29 to 48 mentions). The use of encyclopedias and the periodical reference guide remained about the same in pre- and post- responses.

Sources: Electronic

In the pre-responses there were 3.5 times as many references to TV and radio news or talk shows as sources of information (56 as opposed to 16). Twice as many (6 vs. 11) did mention the use of film or videotape news programs or documentaries as a source of information in the post-responses. It is clear from this dramatic change that students had overestimated the value of the popular media for researching or becoming informed and had discovered the greater utility of books, specific periodicals, and other sources of information.

Sources: Personal

Although not a significant number compared to the entire range of responses, responses indicated perception of a broader scope of possibilities for information, including lectures and museum or embassy visits. The discontinuation of the use of "jokes" for research purposes and writing to the government for information, considered along with the shift in research methods, the following category, give a subtle indication of the maturing of the student group in their knowledge of gathering information.

Methods: Research

Many more references in the pre-responses were made to methodology (179 overall to 165 in the post-responses). Twenty-nine students mentioned "cutting-out" articles, or making a clipping file or collecting material or writing summaries as compared to only 6 students who would engage in that kind of activity in the post-responses. This could indicate that methods which may have been learned and deemed appropriate in a high school were found to be "busy- work" or at least not very useful at the college level.

Pre-responses indicated a vagueness about the methods of gathering, analyzing, and using information. The responses included making a comparison between countries (5 pre-; 1 post-); forming an opinion, forming questions, forming a thesis, reviewing what one already knows or thinking about the future as a method of gathering and analyzing (23 pre-; 3 post-). Six students mentioned analyzing or reviewing information and 2 said they would be "watchful" or "alert" in the pre-responses, whereas only 2 students mentioned analyzing and reviewing and none mentioned watchfulness in the post-response. While "thinking" in general, which is what all these responses refer to, would appear to be a right response, the problem is with the vagueness, the lack of specificity or authority with which these methods are

mentioned. These seem rather to be just concepts for the pre-response students. The post-response students by comparison write more confidently, more specifically and more realistically about what they would do. For example, twice as many would make an outline and write a draft (21 pre-; 42 post-); 19 would organize and categorize their research as opposed to 12 in the pre-responses; 4 knew that they would need time to assimilate their information before embarking on the draft (vs. 0 in the pre-response). Though there were 29 pre-responses mentioning interviews as a method, only 6 of those were specific about interviewing a knowledgeable person. (Other responses were general references to "interview someone" or "talk to family and friend about their feeling.") Compare that with 31 overall post-responses mentioning interviews, of which 18 were described in a specific way, i.e., that an expert or an informed person would be interviewed.

Presentation/Using Information

Evidence of more competence and experience as writers can be gleaned from the greater numbers who mentioned the use of consultation about the paper with teacher or peer (1 pre-; 4 post-); the acceptance of revision of the paper as a step (5 pre-; 11 post-); the need to proofread (1 pre-; 6 post-).

There was a much greater awareness of the "audience" for a paper and/or presentation mentioned in the post-responses, too. In the pre-responses, 2 students mentioned the class/audience ("form questions for class," "make a summary for a hand out"). In the post-responses, 6 students said they would pick a topic of interest to the class, 5 would involve the class (either with questions or evaluations), 3 would ask for feedback and 10 would bring in a speaker, use visual aids or dramatize the presentation for greater effect.

In the affective realm, 4 said in the post-responses that they "would try to make the group feel interested" in their presentation. Ten students showed greater awareness of the affective by mentioning that they would pick a topic of interest to them; no students previously acknowledged that aspect.

Summary

We see in the post-responses a solid turning toward sources and methods used by college students to gather and analyze information and away from popular media, away from vague ideas and concepts about the task of writing a research paper. This is indicated by the greater specificity in naming sources and describing methods that scholars do use in the research and analysis of information. What cannot come across so clearly in the statistical comparison but which, though subjective, is important to

consider, is the way the students write about this task. They seem to know more about themselves as writers. They speak more authoritatively on writing, as experienced writers of essays or research papers. They talk about the actual practices of drafts and revisions and proofreading. They have more innovative ideas about sources and presentation of information. There is greater depth if one notes the vocabulary used in the post-responses, such words as "significant," "factors," "analysis," "knowledgeable." They show greater breadth in that their ideas are more far-ranging but realistic; greater depth in the specificity of sources and methods. They show more maturity, too, in the awareness of the need to consider the audience of their finished work.

A Hard Look at Our Collaboration

Though we have worked closely with our particular Learning Outcomes, and though we are pleased with the kinds of results identified above, there has been at the center of our activities an organizing principle. It is that we have worked together on our teaching. We inspire, goad, and bully one another into a state of wakefulness and intense activity. It must be noted that our collaboration applies to not only our teaching but to our relationship to the institution, to Macomb Community College. The three of us, emboldened by working together, address larger issues of our teaching/working environment: poor communication between members of our department, establishment of a Center for Teaching and Learning, and making friends among the administration by overcoming entrenched habits of thinking. We work harder than ever, but enjoy our work more than ever, never mind that we've each taught here over twenty-five years.

Part Two: Out of Africa

Art Ritas' Story

In the summer of 1984 my wife and I went on a photographic safari in Kenya. After stalking the endangered black rhino (we saw one), we visited Kenya Polytechnic College. I recently ran across an old memo in my files.

Date: July 21, 1984

Subject: Exploring a Formal Link Between Kenya Polytechnic College in Nairobi and Macomb Community College (MCC) in Warren, Michigan.

In the text of the memo I outlined the mutual benefits of this new linkage. After seventeen years of teaching English, I wanted to broaden my horizons. What better horizon than the one that frames the Indian Ocean? Why not a sister school in Africa? Various faculty and deans met to discuss the possibility of a sister school relationship with Kenya Polytechnic. Though the relationship never materialized, the initiative spawned the International Education Task Force (IETF), a grass roots volunteer group committed to internationalizing MCC's curriculum. We discovered like-minded individuals at MCC who wanted to find a way to express their own global perspectives in their teaching. Our meetings were convivial, semi-formal, and animated--an expression of a renewed feeling of purpose and community.

At the same time the learning outcomes movement was taking hold at MCC. And, coincidentally, many people seemed interested in both movements. By fall '86 we had in place the ten learning outcomes--including "to have a world-wide perspective"--devised by a volunteer group in Arts and Sciences. Recognizing the importance of internationally oriented education, our school established an office of international education. Shortly thereafter, the group adopted guidelines for internationalizing from the American Association of State Colleges and Universities:

- A recognition or awareness that one's view of the world is not universally shared and that others' views of the world are profoundly different from one's own.

- An awareness of the diversity of cultures, ideas, and practices found in societies around the world and how these compare; and some recognition of how the ideas and practices of one's own culture might be viewed by individuals in other societies.

- An awareness of prevailing world conditions and developments, including emergent conditions and trends (e.g., population growth, migrations, economic conditions, resources and physical environments, political developments, science and technology, law, health, intranation conflicts).

- An awareness of how the world systems are interdependent and how local economic and social patterns have global impact beyond their effect on individuals' lives.

- An understanding of how developments in other countries may be relevant to one's profession or business.

- A knowledge of various social movements that have created and are creating goals and values that transcend national cultures and ideologies.

- A knowledge of ethical questions and issues that derive from an increased capacity to sense, predict, and manipulate global conditions.

So, we had an office, a new director, guidelines, new enthusiasm, a core group of interested and energetic people; in short, a new mission.

Closer to Home: New Connections with Old Friends

By the fall of '87 I decided that closer links with other teachers in my own discipline, English, would help me promote the infusion of an international perspective into our traditional composition classes. By creating links with people in my own department, I could work collaboratively to develop units on the third world in my composition classes.

In the fall of '87 I began to work with Les Beecher on a Central American unit. Our students read the *New York Times*, wrote short, daily summary/response papers on *Times* articles, kept a clipping file, gave oral reports and kept a writer's notebook on Central American issues. Our writing assignments were hand-made, customized to promote not only the skills necessary to good writing, but also the new outcomes we were aiming for. We brought in speakers, showed films, and finished the course by having students send their final collaboratively written research to ambassadors, congressmen, senators, clergymen and others who would have a keen interest in the subject. Students were surprised to find that the recipients of their research projects often responded with long letters commending them or--in some cases--questioning their research methods and conclusions. Serendipitously, an assignment designed to promote writing skills was created, another link between our students and people in positions of power.

A year later Lou Baltman joined our collaborative effort, and we chose South Africa as a focus. We selected schedules so that all three of us would meet our classes at the same times. All told we had nine sections of first semester composition. We occasionally combined sections for special events: an open discussion with a panel of MCC students from South Africa (an Indian, a black, and a white student); an impassioned personal polemic by an exiled South African attorney; an inflammatory talk by a white South African Presbyterian minister who seemed to call for violent revolution; the screening of the film "A Dry White Season." To round out their study, students read history, literature, and autobiography, and essays that provided a broader context for understanding South Africa. In addition, we followed the struggles of Nelson Mandela as reported in the *New York Times*.

We remained faithful to the traditional role of the English composition teacher--to help students to write well--but we found ourselves in new roles, too: facilitators,

orchestrators, MCs, and collaborators. The three teachers pulled one another through the rough spots and discovered the energizing effect of "creating" a class, much as one would compose and lovingly revise a piece of writing, a personal narrative. Most of all we found ourselves teaching a course that expressed our commonly held strong belief that teachers and students should engage together in active learning.

We were all stimulated to work harder. The teaching team of Baltman, Beecher, and Ritas (some say it sounds like a law firm; others insist, a rock band) met at 7:00 am on class days; then again after class, and usually once a week for a dinner meeting. We had peripatetic meetings and went on weekend retreats to the north woods of Michigan. Our own learning and our desire to enrich the learning environment of the school transcended anything that could be circumscribed by a thing called a "job." We celebrated with our students when a letter to Ford Motor Company prompted a long, detailed (sometimes defensive) explanation of Ford's stand on apartheid. As teachers, it gratified us to see our students making global/local links.

Assessing Students: Global Perspectives

A missing piece in our collaborative, internationally oriented course was provided by Tom Angelo's Classroom Research Workshop in the spring of '89. Tom provided us with many simple techniques for monitoring student learning in new and sometimes intimidating international territory. We adapted Tom's methods, developing what we came to call "imbedded assessment." This kind of assessment asks a student to step back after completing a piece of writing and comment on his/her own learning process and attitudinal shifts. The student preface to the South African research paper is one good example of self assessment that becomes part of the student's finished work.

A Preface for Your Paper on South Africa

> Think about it...You know more about South Africa than nearly anyone outside of Africa. It's no small accomplishment. You've read three major books; you've seen films and listened to speakers; you've read a major newspaper and clipped articles about South Africa. The extensive information you've gathered and discussed has given you expertise enough to write a major paper. Yet, along with the satisfaction you should feel in knowing a subject well, you no doubt have had misgivings, especially at first when South Africa was perhaps nothing more than the name of some place or other on a map somewhere; maybe you've had misgivings throughout the semester as you had to return to South Africa again and again as you built upon your knowledge of South Africa. Now gather your

> reflections on your development as a reader and writer from the beginning of this study to your preparation for writing the final paper on South Africa. What has it been like to learn about the people and politics of South Africa? To read books like *Apartheid: A Graphic Guide* or *Kaffir Boy* or *Cry, the Beloved Country*? To see films like "Children of Apartheid" and "A Dry White Season?" Trace the thoughts and feelings you've had along the way and express them in a preface, which is a kind of introduction that "gives some particulars relating to the origin, history, scope, or intention of the work...." This will begin your paper on South Africa; it could be just a medium paragraph or it could be an entire page. In any case it will be on a page by itself and be called a Preface.

These instructions invite students to be reflective, to take pride in new knowledge, and to articulate what it has been like to learn something new and interesting.

At about this point a newly formed Resources Allocation Panel at MCC began to solicit proposals for funded research. I submitted a proposal and was granted released time to assess students' world-wide perspectives. I began with a content analysis of 75 prefaces to determine students' attitudinal changes vis-a-vis global issues. The following sample is typical:

Preface

When I first started in my English 121 class, I was very ignorant about the topic of apartheid in South Africa. It was too easy to just ignore all of the articles and the rare coverage on television. Throughout this class we have been instructed to not only take notice of and read these articles, but also to evaluate and offer opinions on them. I can now read about the current news in South Africa and understand who is who, what positions they fill, and how life in South Africa is affected by them. Admittedly, I often didn't feel like hearing about something that is happening so far away, which I felt had no direct effect on me. It is a depressing subject to focus on so often, when there seemed to be so little reason for studying it other than the information it gives me about another country. However, I have come to see that apartheid is an important situation in the world today, and it is important to understand the world you live in by comparing it to the world others must live in. More people should take the time to inform themselves about the tragic system of apartheid that is in place right now. South Africa may be far away, but the United States is an influential country and collaboratively we could make an impact on the way of life of the thousands of black residents in South Africa.

After examining seventy-five prefaces like this one I reached some tentative conclusions:

- Students often feel extraordinary anxiety when an international topic is first introduced--they may have no prior knowledge and the international topic often challenges preconceived opinions based on stereotypes.
- Students become intellectually and emotionally involved very quickly if they are immersed in an international topic.
- Students often feel an ethical and moral commitment to continue learning and to impart their learning to others, once they believe international awareness can invite a reassessment of one's values and result in social change.

Using Assessment to Build Community

The next step in my research was to devise an assessment instrument that measured the attitudinal changes students underwent in an internationally oriented course. My ultimate goal in devising the survey was to create another set of linkages--this time among teachers in various disciplines who wanted not only to internationalize their courses, but also to assess the degree to which their students were moving toward a world-wide perspective. Teachers in environmental sciences, biology, history, and English composition administered the following survey pre and post.

SURVEY

Please mark on Scantron sheet:

A	B	C	D	E
Strongly Agree	Mildly Agree	Agree	Mildly Disagree	Disagree

1. On important issues my view of the world is pretty much like the view of most people throughout the world.
2. Even though people in different cultures throughout the world do things differently, their basic ideas on important issues are quite similar.
3. I am aware that it is important for me to follow (closely) world conditions and developments.
4. It is really not too important for me to know about what goes on in other countries.

5. My own welfare and the future (fate) of the U.S. is closely connected to what happens in even remote parts of the world.

6. World systems are interconnected.

7. I accept the idea that what appears to be a distant and strange event in a far country may have a profound effect on me eventually.

8. I see the need to understand how my future profession will be affected by developments in other countries.

9. Anyone seeking to begin a business must take into account global trends.

10. Some social movements transcend national boundaries.

11. People in the world today are more alike than different.

12. It is important to put one's own country's interests above the interests of other countries.

13. We need to protect America from outside influences.

14. Americans need to hold American values sacred.

15. A nation with power should first seek to use that power to benefit its own citizens economically.

16. A wealthy, powerful nation's first responsibility is to do the right thing, not to increase its wealth.

17. The survival of our planet depends upon having a global perspective.

18. The more powerful a country, the more important it is to behave ethically.

19. Learning about what is happening in the U.S. is more important than having a world-wide perspective.

20. I expect that having a global perspective will be increasingly important to me in my future.

Survey results indicated that students taking classes in all four disciplines moved, in varying degrees, toward a more internationally oriented perspective. By studying these results, teachers were able to assess the impact of their attempts to internationalize their classes and to begin a dialogue with others similarly committed.

Next year four teachers from different disciplines will not only administer the survey, but also keep teachers' notebooks so that the rest of us, after analyzing and discussing the notebooks, will be able to isolate (and emulate) teacher practices that seem to promote an international perspective. It is my hope that this phase of the project will draw even more teachers interested in internationalizing their courses.

It seems, then, that my colleagues and I have attempted to incorporate several relatively new movements--classroom assessment, global studies, collaborative teaching and learning, and learning communities--into our teaching to create a synergistic effect. I have contributed to this new synergy by following the path of my own interest--global studies. And, coincidentally, I find myself part of a revitalized community of teachers committed to reexamining their own priorities--and to assessing students' learning.

Part Three: Teaching to the Learning Outcome "To Describe, Evaluate and Effectively Engage in Social Interactions"

Lou Baltman's Story

I chose to teach and to assess the outcome "to describe, evaluate and effectively engage in social interactions" because students working collaboratively, then stepping back to reflect and assess the process of collaboration is central to our active-learning approach. Indeed, the three of us act as models of the collaborative process. Our three names are included in our first-day handouts. We combine classes during the second time we meet and team teach the session. We might simulate one of our planning meetings so students look on as we show them what goes on when we plan the course, or we might analyze a short story.

Last semester we discussed Tim O'Brien's "The Things They Carried." Our students had to record the points at which the focus of our discussion shifted to another subject or topic. Then we gathered the observations they reported back to us immediately following our presentation. From their comments we constructed a Step-by-Step Discussion of Literature sheet that they could use as a guide for their own discussions.

The Step-By-Step Process of Discussing and Reading Literature

Some General Observations

Debate, conflict, an argumentative edge are the basis for a challenging discussion.

A discussion bogs down when there is too much agreement or too much disagreement.

When there are three in a group, one person can often act as a catalyst.

An open-ended finish is fine. (There is no need for consensus.)

Some Steps

The key is to question each other and to continue questioning; to redefine and alter the question as you proceed.

Listen to each other no matter whether you agree or disagree.

Define key or unexplained terms.

Constantly ask for clarification--go back and clarify previous information.

Make sure there is a clear transition when you switch frames (for example, from the symbolic to the literal).

Use examples constantly.

Change or modify your view to take into account the points presented by others.

Read aloud a specific passage to validate a view and read new passages to move the discussion forward.

Use metaphors to test answers.

Student Collaboration

Many of our assignments require that students work in small collaborative groups. In a typical assignment each group chose an illustration from Woods' and Bostock's *Apartheid: A Graphic Guide*, a book we were using during our study of South Africa. The group had to analyze the graphic for its point of view and effectiveness in conveying its message. Then each group had to write an essay collaboratively following very clear and detailed instructions. First they placed the graphic in its historical context. Following this they described the picture in detail to create a clear image for someone who had not seen it. Finally they had to define what they believed the artist's purpose was and what kind of audience he was attempting to reach. In a follow-up assignment, using their papers as guides, the students presented their graphics to the class. Everyone was required to participate.

We combine classes about once a month to hear speakers, to lecture about writing, to create a forum for students to present their work, and to have our own students interact with members of other classes. We have had some very successful end-of-the-semester large group meetings that have highlighted and celebrated the semester's work. Last semester students from our classes collaboratively presented "What every American should know about the Central American country I studied" and "How the literature of the country reflects the reality of life there." At another time we videotaped an energetic presentation about South Africa, including a rap song protesting Nelson Mandela's imprisonment that an enterprising student composed. One of our last sessions was devoted to debates between classes about controversial topics that enlivened the usually low-key last days.

Because we stress speaking in front of others, we try to have each student say something during each class session. I tell my classes that I have modified the lawyer's motto "Nobody talks. Everybody walks." to "Everybody talks. Nobody walks." I have found collaborative groups helpful in relieving some of the anxiety students feel when speaking in front of others because the group can act as a small safe haven for individuals to practice what they are going to say. This way, the collaborative group can become a community.

My classroom research and my own observations convinced me that working in small groups was benefiting my students. Yet I needed to verify it. So in the spring of 1990, with the invaluable help of Brian Dates, a psychologist, and Jewell Miller, a former student, I had each of the 167 second semester freshmen in eight classes that Les, Art and I were teaching write a paragraph responding to this hypothetical situation:

> Imagine you are working with three other people on a group assignment for a class and Mia, one of the members of the group, isn't doing her work.
>
> In a short paragraph explain how you would solve this problem, why you chose this solution, and why you think your solution will be effective.

After a content analysis of their paragraphs, I found six categories of response: 1. Talk to the professor; 2. Do nothing; 3. Talk to the student; 4. Carry the student's load; 5. Talk to the other members of the group; 6. Drop the student from the group.

Then Les, Art and I each independently ranked the categories from most preferable to least preferable response to Mia's recalcitrant behavior:

	Professor		
Solution Number	1	2	3
1	3	3	4
2	5	5	6
3	1	2	1
4	6	6	3
5	2	1	2
6	4	4	5

Finally, our students wrote paragraphs at the end of the semester again reacting to the Mia question. After doing a statistical analysis, I found no significant difference between the students' pre- and post-responses. Most said they would talk to Mia first, and if that didn't change her behavior, they would inform the teacher. However, at the end of the semester they did move closer to our rankings of how we would deal with Mia. This indicates that the goal of the collaborative learning experience as regards solving the problem of an unproductive student is being more fully achieved as a result of our work.

My classroom research is part of our ongoing effort to assess the effectiveness of collaboration. I repeated the "Mia-problem" assessment with incoming freshmen last fall in order to compare their responses to those of the second semester freshmen. My initial observations show that a number of our students have become more personally assertive, more sure of themselves by the end of the semester because they have been working with others.

This fall I will continue my classroom research by comparing how incoming freshmen at the beginning and at the end of the semester would deal with someone who tries to dominate a small collaborative group. This scenario is more complicated than the Mia problem because the other members of Mia's group could function without Mia, but the whole group could fall apart if the overly aggressive student wasn't curtailed.

I am also going to explore some other questions: Because many of our students work over thirty hours a week, what kinds of groupings make sense for them? Could groups of two, three and four members operate in the same class? Should students be grouped according to their schedules? Should groups be formed at the beginning of the semester or should students become acquainted with each other first?

What becomes clearer as I continue my research is that each group has its own personality and character--in a sense it's a mini-class--so that all conclusions must be constantly examined in the light of the classroom.

Faculty Collaboration

My interest in exploring the dynamics of collaboration has come partly from the pleasure of working with Art and Les. Indeed, if I left Macomb Community College and went to another school, I would immediately seek out colleagues with whom I could collaborate.

Before I began collaborating with Les and Art I was suffering the major occupational hazard of teaching: being worn down by repetition. I still had sparks of enthusiasm, but after teaching for twenty-four years, I was still repeating what I had been doing since the day I had started: I would go into the classroom, conduct class, and then walk out again. The students were getting younger; I was getting older. If I had become a lawyer or doctor I now might be a judge or a chief surgeon. But I was still doing the same job, although I was being paid more. I had friends in the department, yet I felt isolated and didn't have a continuous feedback system. Certainly I had the power of closing my classroom door and the pleasure of teaching my students. But my role was that of a parent without an on-going peer support group. When the three of us began collaborating I was somewhat hesitant and a little suspicious. Les and Art had worked together on the course before and seemed attuned to each other. Also, I resented modifying my style and approach. But I soon began discovering the pleasures and rewards of collaboration: I was able to do three times as much as I had previously done. Together we could order and use the *New York Times*; arrange for speakers and rooms; combine classes; write out many assignments; organize and work closely with small student collaborative groups. Then the tangible rewards came: our class size was lowered from 28 to 20, and we were given release time to assess our individual projects.

Collaborating has made me examine some of my approaches and my philosophy (and, at times, my personality and habits). Indeed, it has forced each of us to explain and to justify our methods and approaches. We write much more because we encourage each other to do so. Our audiences are ourselves and our classes. In addition, we act as a collaborative model for our students who see us in action. I have kept my individuality because I can modify any assignment to my liking. I determine what happens in my own classroom, and I decide on my final grades. If you could peek into our office on a Monday morning at 7:00 am, an hour before our classes start, and see three full professors drinking tea and laughing as they huddle over some last-minute fine tuning, and if you could see us at ten to eight leaving our office area like the Detroit Pistons of two seasons ago leaving their locker room, you too could feel the joys of our small community.

Classroom Assessment for Literacy: Searching for Course Content Worth Teaching and Learning

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During a discussion on assessing the effects of a curriculum revision, the provost of a major university said to me, "I don't want our students merely to know facts; I don't want us to produce generations of quiz bowl champions." Of course, I nodded in agreement. The conventional wisdom of higher education today is that higher-order cognitive skills such as analysis, synthesis, and evaluation are to be valued over the simpler skills of knowledge acquisition and comprehension (Bloom, 1956; McKeachie, Pintrich, Lin, & Smith, 1986; Segal, Chipman, & Glaser, 1985). Playing the role of devil's advocate, I asked the provost, "How would you feel if an alumnus from your institution missed question after question on a nationally televised game show?" His reply was faithful to his earlier opinion. He said, "If I knew the alumnus was a good problem solver and critical thinker, it wouldn't bother me." Privately I thought, it would bother me! On national television if a student of mine confused the theories of Sigmund Freud with those of B. F. Skinner, I would be bothered. I expect students to have some literacy in psychology after four years of studying it.

Instructors intuitively know that literacy and higher-order cognitive skills are interrelated; students who can not easily recall key facts and ideas are not likely to be good thinkers. When instructors meet bright alumni who remember little or nothing of what they were taught, both the instructors and the alumni feel embarrassed. Many instructors and their students believe the content of courses is worth knowing. On the other hand, instructors may not recognize that some content is not worth a student's effort to commit it to long-term memory. Some nonessential content may not require the same level of learning as other content. Therefore, an important overall goal of classroom assessment is to search for essential content and to develop instructional techniques that help students learn and retain essential content. According to Angelo (1990), classroom assessment is an instructor-directed, learner-centered process to examine the effectiveness of teaching and learning in the classroom. Classroom research is a process of assessment that "is a continuous, ongoing study of teaching and learning in the classroom through a wide variety of appropriate, teacher-developed means" (Angelo, 1990, p. 81).

In the teaching of psychology, I currently assume that when students know essential content, they are better prepared to think like behavioral scientists, and I am in a better position to help them acquire the higher-order cognitive skills that the discipline demands.

The purpose of this article is to discuss ways for classroom researchers to identify, teach and assess the essential content of their courses. Criteria for discriminating between essential course content and other forms of content are presented. Classroom assessment techniques and procedures are described that can be used to teach essential content. Finally, guidelines for mixing content assessment with assessments of other forms of learning are offered.

Essential Content

As part of the Berkeley Classroom Research Project, over 5000 instructors in the United States have taken the Teaching Goals Inventory (Cross, 1990a and 1990b). The Teaching Goals Inventory has six subscores or clusters: a) higher-order thinking skills, b) academic success skills, c) discipline-related skills, d) liberal arts education, e) career skills, and f) personal development. Cross and her colleagues found that many four-year college instructors stress content learning and higher-order thinking skills (discipline-related knowledge and skills). While there are differences in teaching goals among instructors in the disciplines, a high priority for most instructors is to have their students learn the content of their courses.

Because most instructors teach a lot of content in their courses, at the beginning of an assessment project they have difficulty answering the question, "What content should I assess?" It is obvious that they can not assess the learning of all course content. Also, they realize that the assessment process itself requires time and, as a result, some content cannot be covered. For this reason and because student learning is a goal of classroom research, many classroom researchers have found that their students learn more when they teach better content (Angelo, 1990; Walker, 1991). Therefore it is important for instructors to decide what content is essential and important, and what content is nonessential and less important. Based on my classroom research and the experiences of colleagues, I propose the following four definitions of essential course content:

Foundation content Facts, ideas, principles and theories that students must know to understand content presented later in a course is essential content. Likewise, course content that must be known by students when they take upper division courses within a curriculum is essential content. Content that holds an unmistakable interdependent

relation with other content is important and indispensable; this kind of content should be the target of assessment. It is worth teaching and learning.

Exemplary content Some content holds an important metaphorical relationship to other content. Professionals in every discipline accord special status to a few of their colleagues, and the work of these special individuals is considered exemplary. The work of these exceptional people can provide a useful model and reference point for students to evaluate the work of others and their own work (Shulman, 1987). For example, when I teach social psychology, I emphasize classic research studies such as those of Solomon Ash or Robert Zajonc. What these researchers found is interesting; more importantly, how they found it is exemplary. I have discovered that when students appreciate the work of researchers such as Ash and Zajonc it is easier for them to understand how scientific methods are currently being applied to study social behavior.

Revised content Any new important content added to a course or a new organization of existing course content should be assessed the first time it is presented by instructors. Because it is difficult for instructors to guess what students will learn, or how students will learn what they do or react to it, it is imperative that their understanding of new content be assessed. With assessment data in hand, instructors are in a better position to evaluate their teaching strategies and the effect these strategies have on students when they try to learn new content.

Evaluated content Students often ask, "What do we have to know to get a good grade in this course? or more to the point, "What will be on the test?" The course content that comes to mind when these kinds of questions are raised should be assessed; it is probably essential content. I have found that students learn more and achieve higher grades when the assessment devices I have used foretell the content of graded examinations (Walker, 1991).

When the above four definitions are applied, some course content is rendered nonessential. For example, content may be nonessential that is "traditionally" taught or habitually taught in core courses, or that is dictated by out-of-date course catalogues or standardized syllabi, or added to a text by an author to increase readability, or finally, presented in lectures merely because it titillates students. Such nonessential content may not be worth teaching or learning, let alone assessing.

Content that is worth assessing often requires the invention of discipline-specific assessment techniques and procedures. In the next section I will discuss guidelines for designing and using discipline-specific techniques.

Discipline-Specific Assessment Techniques

Although the Cross and Angelo (1988) handbook is an extremely useful guide to classroom assessment, some instructors do not dogear and tatter their copies. My copy is well worn. But I am hooked on the process of assessing. I have tried several of their techniques and found that they worked for me (Walker, 1991). After informally talking with colleagues on teaching and sharing my successes with classroom assessment, upon their request I have sent them copies of the Cross and Angelo handbook, accompanied with a note, "Please have a look at this handbook and in a couple weeks give me your reaction." Some of the reactions have been disappointing. A common reply is, "If I did this, then I would be not able to cover some things." Another reply is, "This stuff is interesting, but I can't see how I can work it into my teaching." The handbooks I get back from instructors who say these things look brand new.

The reason that many instructors do not immediately cotton to the idea of using assessment techniques is that they do not see how existing techniques can be adapted to teach important course content and they do not know how to invent their own content-specific techniques. Another source of resistance is that they believe that they are already getting sufficient feedback from their students; they confuse soft assessment data with hard assessment data. Let me try to explain some of the differences between soft and hard data.

Soft data Soft data are unquantified information on learning or teaching effectiveness. Many instructors acquire soft assessment data through natural perceptual processes. By virtue of their abilities or personalities, good instructors probably monitor their students in classrooms better than others (Larkin, 1987). Similarly, instructors who use active learning and collaborative learning, or who must teach motor skills rather than abstract knowledge, have soft data available to them as a natural consequence of what and how they teach. Soft data are better than no data. However, soft data are not as useful for the purposes of classroom assessment, particularly during the early phases of a classroom research project. Soft data gathered by common teaching techniques, such as asking for a show of hands of students who do not understand something or looking for "nods of comprehension," may not shed light on some of the more vexing problems in teaching and learning. Such data are too subjective and can be misleading. Being misled by data can be troublesome at any time, but it is particularly problematic at the beginning of a classroom research project. I have found that it is best to start a classroom research project with hard data. Based on my experience, I suggest that instructors shift to soft forms of assessment only after they are sure that their students and themselves have fully benefitted from hard assessment of teaching and learning (see Table 1 for a graphic illustration).

Table 1. Assessment Data and Instructional Change: A Developmental Model of Classroom Research*

Assessment Phases	Student Learning Data: Soft	Student Learning Data: Hard
1.	problem awareness	
2.		problem definition
3.		solution exploration
4.	solution checking	

*Although the model depicted in Table 1 shows the assessment phases unfolding in a simple linear order, it should be recognized that cyclical processes occur within each phase. This model does not intend to suggest that hard data are necessarily better than soft data; rather that for the purposes of defining a problem and exploring solutions, hard data may be more useful.

Hard data Hard data are quantified information on teaching or learning effectiveness. All hard data can be treated with simple descriptive statistics (e.g., the percentage of students who gave the "correct, incorrect, or other" answers to an assessment question), and less frequently, some hard data may be analyzed with inferential statistics (e.g., parametric and nonparametric tests to assess whether students responses were determined by chance). Hard data can be gathered through either summative or formative assessment procedures.

The most useful discipline-specific assessment techniques generate hard data on instruction and learning. Soft data are tempting for beginning classroom researchers to "collect." Soft data naturally emerge from teaching and learning; hard data collection seems artificial and intrusive, but this need not be so. Angelo (1990) and Walker (1991) have described guidelines for making and using discipline-specific assessment techniques. I will summarize their suggestions in the following paragraphs. Whereas the guidelines I suggest emphasize learning, the guidelines of Angelo stress teaching.

MORE Guidelines

To support student learning, I suggest that when classroom researchers create and use discipline-specific assessment devices they should choose techniques that a) stimulate student motivation, b) help students organize learning tasks for memory storage and retreival, c) allow students to rehearse or practice what they have learned,

and d) encourage students to elaborate what they have learned, i.e., have students rephrase what they have learned in their own words.

Angelo Guidelines

Angelo has consistently stressed that assessment should be a natural part of teaching. He suggests that any content can be converted into an effective assessment technique when simple principles are heeded. According to Angelo (1990, p. 79), discipline-specific techniques are more effective when they are:

1. Context-specific--providing information about what a specific group of students is learning at a given moment in a particular classroom about a particular subject.

2. Action-oriented--focusing on specific aspects of learner or teacher behavior that can be changed within the limits of time and energy available.

3. Mutually beneficial--giving students information that they can use to improve their learning, as well as providing teachers with information to improve their teaching.

4. Formative--not summative in nature, meaning that they are ungraded and often anonymous assessments used to understand and improve student learning, not to evaluate or sort students.

5. Relatively simple--to prepare and easily adaptable to a variety of situations.

6. Quick to administer--yielding data that can be quickly analyzed and turned into information that can be used to improve learning.

7. Educationally valid--reinforcing learning of the skills and/or content that are the focus of the course.

An example of how these guidelines can be applied may be helpful. After reading Martin Seligman's new text on learned optimism (Seligman, 1991), I decided to incorporate the results of his recent research into the lecture on depression I usually give to students in introductory psychology. According to Seligman, depression is caused by a pessimistic attributional style. When something goes wrong, a pessimist believes it will continue to happen (permanent attribution), it will happen with other things (persuasive attribution), and he or she is to blame (personal attribution). For example, a pessimistic rejected lover will say to himself, "Lucy will never love me. I

don't stand a chance with other women, and it's all my fault." A rejected optimist will say, "Lucy said no to me today. There are other women who would have said yes. Perhaps Lucy doesn't know me yet."

To challenge pessimistic thinking, Seligman proposes doing an ABCD (Adversity, Belief, Consequence, and Disputation) analysis. To do this, he suggests that you should begin by describing the adverse event, then give your belief about why it happened and the emotional consequence you felt as a result of the adversity and your belief about it. Finally, you should dispute your pessimistic belief by adopting an optimistic explanatory style: Transform a permanent outcome to a temporary one, a pervasive outcome to a specific one, and a personal internal cause to a less personal, external cause. For an example, see how the optimist above interpreted Lucy's rejection. The work of Seligman is essential content of an introductory course in psychology. It connects three content areas: learning, cognition, and maladjustment. It is exemplary, and it is new and important. Therefore, I devised an assessment technique to measure how well I taught his ideas. No existing technique in the Cross and Angelo handbook can be adopted without modifications to assess a student's learning of Seligman's theory, but technique 14, an Invented Dialogue, is relevant. I modified it to be a dialogue within the self, a dialogue between the pessimistic and optimistic self (see Figure 1).

After lecturing on Seligman's theory, I simply had students confront their own pessimism. I gathered their anonymous replies and reviewed them looking for errors on how they applied his theory of attributional style to analyze their own pessimism. At the beginning of the next lecture I discussed their errors and presented his theory more lucidly. I also discussed some very interesting secondary data: adversities that students face in life. I felt closer to my students after hearing about their troubles. Some students came to my office for the first time to discuss Seligman's theory and to talk about their problems and depression.

Figure 1. An Example of a Topic-Specific Assessment Technique.

From Pessimism to Optimism: A Dialogue within the Self

Description of Adversity Number One:

The Pessimist's Position

The Pessimistic Belief about the Adversity:

Consequence of the Pessimistic Belief:

The Optimist's Reply

Disputation of Pessimistic Belief:

The Optimistic Belief about the Adversity:

Consequence of the Optimistic Belief:

Description of Adversity Number Two:

The Pessimist's Position

The Pessimistic Belief about the Adversity:

Consequence of the Pessimistic Belief:

The Optimist's Reply

Disputation of Pessimistic Belief:

The Optimistic Belief about the Adversity:

Consequence of the Optimistic Belief:

How this example complies with the guidelines of Angelo is transparent; however, how it complies with the MORE guidelines may be less obvious. To arouse motivation I asked students to apply Seligman's theory to themselves. A frequent reason why students take a course in psychology is to gain personal insight. I used the acronym ABCD provided by Seligman as a memory organization device. Doing this aided their memory as well as conveyed the essentials of Seligman's theory. Rehearsal was encouraged because I asked the students to do the assessment after I lectured on his theory. Student were urged to do the assessment from memory and to turn to their notes only when necessary. Finally, I encouraged elaboration by asking students to generate two of their own examples of pessimistic thinking. Doing these things was apparently effective because it was primarily the students who did not attend class the day I did this assessment who missed questions on Seligman's theory on the unit test.

Most learning assessment entails more than simply finding out whether students have learned course content; it necessarily also taps how they think and feel about content. However, I have found that data on student feelings about content are less immediately useful than data on their comprehension of content. For me, the assessment of content learning is at the center of classroom research. In the next section I will discuss the results of my recent attempts to mix the assessment of content learning with other forms of assessment.

Doing Content Assessment with Other Forms of Assessment

Cross and Angelo (1988) and Angelo (1990) suggest that effective classroom assessment begins with goal setting: Instructors must set their own goals, discover the goals of their students and then attempt to achieve a classroom consensus on goals. After two years of goal setting in a variety of classes with freshman to second-year graduate students, I have consistently found that my highest-ranked goal is also one of their higher goals: To learn about psychology. While it is true that some students say their highest goal is to get a good grade or to learn more about themselves, the vast majority say they want to learn about psychology. Virtually no students say they want to acquire better critical thinking skills, become better learners or become more aware of the feelings they have about psychology. Although these goals are in my top five ranked goals, they are not among the top goals of most students. After some discussion, I usually persuade them and they put them in their lists, but they are not there in the first place.

What does this mean? I interpret the results of these goal-setting assessments literally: my highest priority should be to create a learning environment that helps

students acquire as much psychology as they are willing and able to learn. Accordingly, what, when, and how assessments are done should reflect a commitment to the goal of teaching course content. However, because I also want students to develop higher-order cognitive skills and to become more skilled as learners (e.g., become more aware of their learning goals), I must, as well, do assessments that support the achievement of these objectives. In the following part of this paper I will propose ways to promote higher-order skills and learner awareness while keeping course content at the center of the assessment process.

Sequenced assessments When I teach a topic that requires more than a couple of class meetings and the concepts are logically dependent, I have found using a sequence of assessments to be very effective. For example, when teaching what experimental methods are and how they are different from correlational methods, I have found that separate assessments must be used to teach a) descriptions of the variables involved, b) how the variables relate to each other, and c) how investigators control or measure these variables when they do research. To teach this kind of content, a natural sequence of assessments unfolds that roughly approximates the taxonomy of Bloom: first, assess the learning of descriptive, factual content; second, assess the learning of relational content; third, assess the application or synthesis of content.

To do this, I first obtain data on how many students know the difference between independent, dependent, confounding, and extraneous variables. Then, I gather more soft data to discover how many students can see the difference between causal, correlational, and irrelevant variable relations. Finally, I collect data on how many students can apply this knowledge successfully to debunk an ESP demonstration that I have given them, or I inquire to see how many of them can propose their own study to test an ESP hypothesis. After a review of their assessment sheets and some reteaching, if most of the class is with me, at this point I may "sandwich in" other assessments by asking them to do a Documented Problem-Set Solution (technique 5), a Process Self-Analysis (technique 21), or a One-Minute Paper (technique 27). The latter techniques generate student data on, respectively, the steps they took to solve the problem, what they learned about how they learn, and how they felt about this particular learning experience.

Sandwiched assessments I have discovered that "sandwiching" is a simple way to gather three different types of assessment data concurrently: what was learned, how it was learned, and feelings about what was learned. Sandwiching is similar to but different from sequencing. Whereas sequenced assessments are logically ordered in their presentation, sandwiched assessments can be presented concurrently or in many possible orders. For example, when I teach introductory students about Seligman's theory of optimistic attributional style, first I have them do an Invented Dialogue to

assess comprehension. Next, I request feedback on what they do not understand and, in response, immediately reteach the more difficult concepts before I proceed. Finally, on the back of the assessment sheet, I have them respond to two questions: a) What strategies worked or did not work when you did this exercise? b) How important is Seligman's theory to you? While the assessment of comprehension usually should be done first, there is no preferred order for assessing student affect responses and learning strategies.

Either the sequencing or sandwiching of assessments allows classroom researchers to blend content assessment with other forms of assessment while keeping the assessment process content-centered. Sequenced or sandwiched assessments may involve the collection of both soft and hard data; however, I have obtained the best results when key content has been assessed with hard data techniques. Although sequencing and sandwiching are new assessment strategies and need more refinement, I have found them to produce data that mutually benefit teaching and learning. I urge other classroom researchers to try these procedures.

Summary

Teaching the content knowledge of a discipline has recently become unfashionable, and there may be good reasons for this. Certainly we do not want our colleges to produce the kind of narrowly educated person that Bloom (1987) has described. On the other hand, the liberal arts, sciences and applied disciplines have produced bodies of knowledge that have become significant, valued parts of the content of college courses and curricula. It may be that such content itself is not the problem; rather, the problem may be the way the content has been taught. Dubious teaching techniques, such as lecturing and then testing students with multiple-choice tests at mid-term and at the end of a course, probably encourage the kind of learning that critics have assailed. Helping students achieve literacy in the disciplines through innovative teaching is a worthwhile goal. The challenge to classroom researchers is to use assessment procedures to discover more effective ways to teach and learn essential course content.

In this paper I have summarized the results of some of my recent classroom research on teaching essential course content. I urge other researchers to assess for literacy and search for course content worth teaching and learning. What I think we will find is that much of the content of our courses is not as trivial as the critics have led us to believe.

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